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MAY 2007
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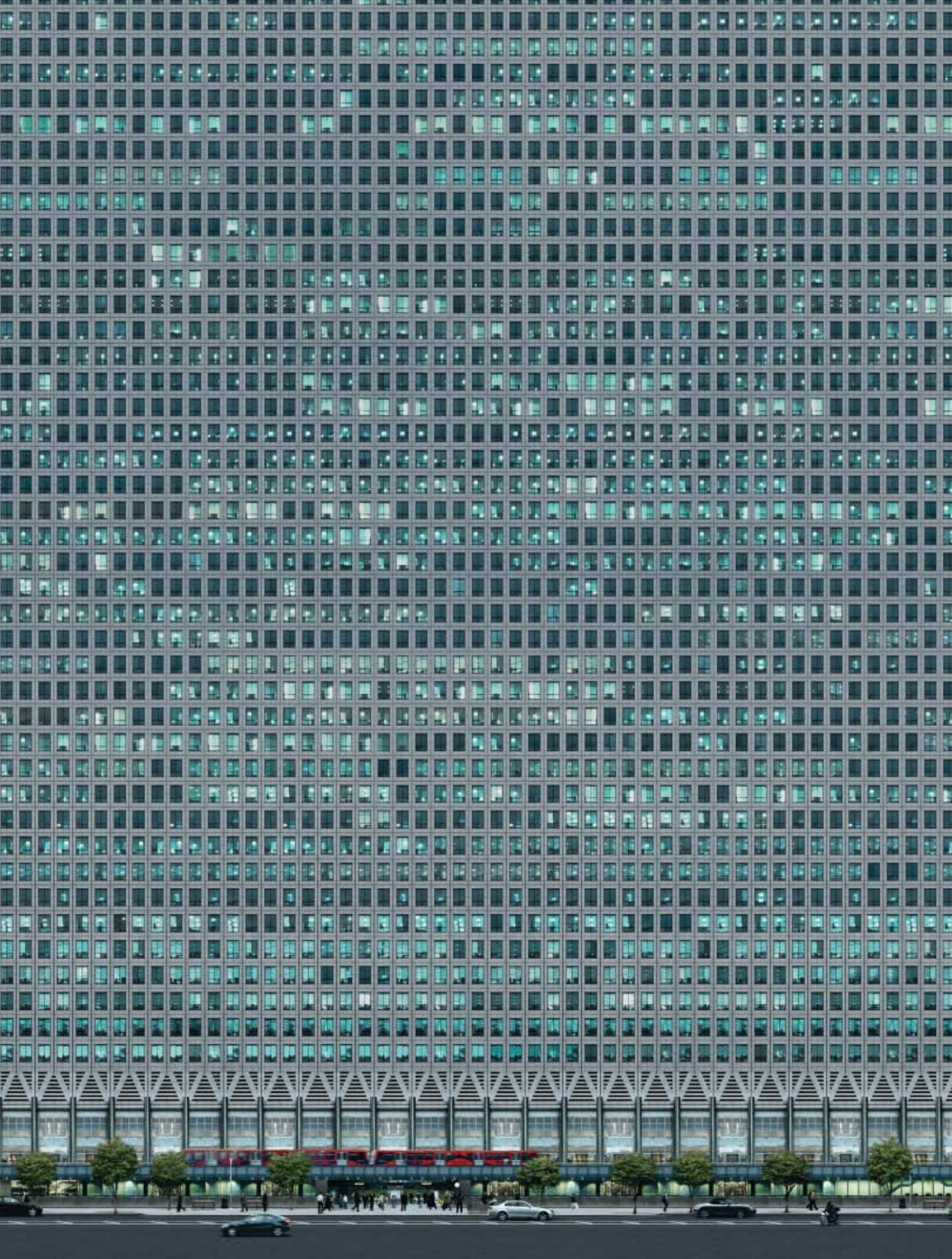
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» Learning Path Article not a perfect fit? Find more resources to match your knowledge and skills.

» Interact! Network with authors, peers, product vendors, and Microsoft.



... Tired of Nursing Your Exchange Server?



#1 BEST SELLER!

Anyone who has given birth to an Exchange network knows it can get sick and needs some nursing to stay healthy. In fact, 72% of Exchange Administrators surveyed* have "experienced" an Exchange disaster (feels like the flu)—usually from improper feeding and care.

Like many databases, constant adding and deleting can corrupt an Exchange data file so it eventually turns sour. Replicating, archiving and backing up the data doesn't stop the stink—it just stores it. You've got to...

Fix the Problem

You may have tried the free utilities to fix Exchange. While they help, they are too tedious, time consuming and lightweight to keep your Exchange baby healthy. You've tried the milk, now try some meat!

Pamper Yourself with GOexchange

It's time to try GOexchange, from Lucid8, the #1 best-selling automated disaster prevention and optimization software for Microsoft Exchange 5.5, 2000, 2003 and 2007. As the mother of all Exchange tools, GOexchange helps prevent disasters, repair problems, improves performance, and saves you a lot of time.

"Without routine maintenance, decreasing performance, increased warnings and errors accumulate and database fragmentation transpires, leading to Exchange disasters."

Gartner

Prevent Hiccups

GOexchange removes errors, warnings and inconsistencies within the database—before major corruption makes the database fail.

"GOexchange corrected 2,264 errors and 26 warnings."

Paul Ramos, Director IT

Run, Don't Crawl

In addition to fixing the database, GOexchange removes sluggishness and improves performance by re-indexing and defragmenting the database to permanently remove white space and deleted items. The end result is increased performance and stability with a compact efficient database that's 31 to 55% smaller! Combine this with archiving and the database is up to 91% smaller—making it much quicker to backup.

"..our information stores were reduced by 45-50%."

Dale Huitt, Systems Lead

Automated Babysitter

First, GOexchange is easy to setup and use. Twenty minutes—that's all it takes to get your server up and running. Just schedule it, and walk away!

The software notifies the users, validates the database, runs the backup, conducts a comprehensive system analysis and diagnostics, logs the errors, and notifies you if it discovers a "stop" error—then it repairs and defragments the database, generates a thorough report and schedules the next event.

You can do some of this work yourself, but why waste time doing repetitive maintenance, when GOexchange can do it for you—faster and more effectively than doing it by hand.



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"Life before GOexchange...was an absolute nightmare, late nights, long weekends and upset users."

Marty Grogan, CTO

Stop The Crying

Why not call now, or visit our resource site and learn how to reduce the risk, and avoid the pain. Protect your exchange data, maximize performance, and spend a weekend at home—instead of babysitting Exchange.

Special Offer

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- Free Essential Guide to Exchange Preventative Maintenance

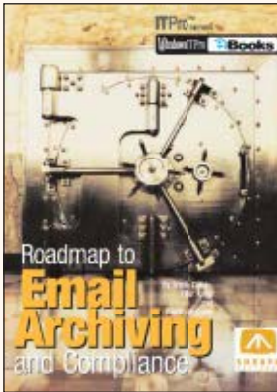
Go to: www.Lucid8.com/GoITPro

Call 425.456.8474

E-mail: Sales@Lucid8.com

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COMPLIANCE, CRISES, AND CONSOLIDATION



“Roadmap to Email Archiving and Compliance”

How will compliance regulations affect your IT infrastructure? This free eBook will help you design your retention and retrieval, privacy, and security policies to ensure that your organization is compliant.

<http://www.windowsitpro.com/go/ebooks/sherpa/compliance/?code=marcitic>

“The Email Management Crisis”

Make 2007 the year that you proactively address email challenges before they turn into a true crisis. Get the inside track on the problems that will come to a head in 2007 with this comprehensive guide.

<http://www.windowsitpro.com/go/whitepapers/messageone/emailcrisis/?code=marcitic>

“Top 5 Reasons Storage Consolidation Should Be on Every IT Department’s Short List”

Do you know where your information is? Is it protected? Backed-up? Download this free podcast today to learn the top five reasons for considering storage consolidation.

<http://www.windowsitpro.com/go/podcast/hp/consolidation/?code=marcitic>



YOUR SAVVY ASSISTANT

Your new assistant, Christian Humphries, is working hard to connect you to information and resources that you might not be aware of. Here’s a section from one of her recent posts. Check out the Web-exclusive column at <http://windowsitpro.com/departments/departentid/I035/I035.html>.

Readers requested:

“What are Client Services for Netware?”

InstantDoc ID I4415

Related resource:

“How do I uninstall the Client Services for Netware component?”

InstantDoc ID 93410

The comment thread on the “What are Client Services for Netware?” article shows a lot of readers searching for how to uninstall Client Services for Netware, and one reader even offers a solution in the comment section. Now, Mama didn’t raise no fool, so I figured that you all might like to see an article that answers your questions. Check out this related article for some official instructions about uninstalling Client Services.

Exchange Server Roadshows

Do you wonder whether Exchange 2007 really will improve your email environment and enhance productivity? Join independent experts and your peers for the Microsoft Unified Communications roadshows, coming to eight US cities in March and April. In addition to a product feature overview, you’ll learn how to effectively install, manage, and secure Exchange 2007.

<http://www.windowsitpro.com/go/exchangeshow>



Hey Microsoft! Blog

My Hey Microsoft! column in *Windows IT Pro* has been my attempt to take your questions and concerns to the product developers at Microsoft and get them to respond and see if they really hear you. I decided to start this blog because I’m always talking to Microsoft and getting briefed on stuff, but there’s never enough space in the magazine to cover it all. So, I’ll tell you what I find out, and I invite and encourage you to tell me what you think, want, and need. I’ll take your input back to Microsoft, but better yet, they can just read this blog, too. :-)

—Karen Forster

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Searching for Microsoft Vista Management Products?



From ExBPA to ExRAP

A virtuous cycle benefits Microsoft by making IT more effective

A *virtuous cycle*, according to *Wikipedia*, is a system of events that includes a feedback loop “in which each iteration of the cycle reinforces the first,” and “a virtuous cycle has favorable results.” That definition pretty well describes the effect of the Exchange Server Best Practices Analyzer (ExBPA), Microsoft’s automated scanning and reporting tool that lets you check your Exchange configuration against current Microsoft best practices. Since Exchange Server 2003’s ExBPA launched in September 2004, its scope has continually broadened from approximately 500 best-practices rules and 300 related online articles to 3,000 rules with approximately 1,500 related articles today. The rules are based on best practices derived from customer support data and contributed by Exchange users.

But the tool’s growing scope isn’t the only favorable result of ExBPA, as I learned in a recent conversation with Jim Lucey, a supportability program manager for Exchange in Microsoft’s Customer Services and Support (CSS) organization, and Clarence Satchell, a program manager in Premier Field Engineering. In addition, Jim told me, “ExBPA is a proactive tool, but our feedback to the product group was that customers have a lot of other pain areas: performance, mail flow, disaster recovery scenarios, etc. So the product team has created more reactive rules-based troubleshooting tools built on the ExBPA engine. They also built ExBPA into Exchange 2007, so we have built-in tools for some critical situation areas to help troubleshoot for our customers.” (To learn about a couple of these tools, see “The Exchange Performance Troubleshooting Analyzer” at <http://www.windowsitpro.com/article/articleid/49524/49524.html>.) Another favorable result is that other Microsoft products, including ASP.NET, ISA Server, and SQL Server now also have or are developing best practices tools.

ExRAP

An interesting outgrowth from ExBPA is the Exchange Server Risk Assessment and Health Check Program (ExRAP), which Microsoft started in March 2005 for customers who have a Premier Support contract. Clarence is in charge of ExRAP and told me it’s “an onsite engagement that consists of three phases: data collection, analysis and reporting, and remediation. During data collection, we use tools such as ExBPA and an operational survey with IT to gauge whether they’re working according to best practices.” An example of the questions on the operational survey is: “Do you have documented and communicated escalation matrices for Microsoft Exchange Server outages? (*Escalation matrices*

define escalation paths to higher levels of technical resources and higher levels of management based on duration triggers and severity triggers. For example, a severity 1 outage might be escalated immediately to Tier 3 support, and executive management might be notified after 1 hour.)”

Next, Clarence explained, “From those results, we send the data to [Microsoft IT] MSIT and generate a scorecard, or benchmarking against MSIT best practices, to see where this customer stands. The support engineer can review the results and interject information as well, because everybody’s environment is different. Once the information has been finalized, we produce two reports for the customer: one for the executives and a detailed report for IT.”

Clarence continued, “Our scorecard uses red, yellow, green (high, medium, low risk) indicators to rate dependencies such as networking, disaster recovery, security. From those results, we have a dialog with the customer and do a formal presentation at the end. We explain in detail each of the issues we found and why they have a certain severity associated with them.”

Finally, Clarence said, his team loops back with the customer to “lay out a remediation plan that shows which findings are most critical and which ones need to be addressed in what timeframe.” Microsoft engineers can assist with the remediation, or customers can fix the problems themselves.

The goal of ExRAP, Clarence says, is “to educate customers about the risk that’s inherent in their environment. They may have gone years without any issues at all or they may have constant issues and don’t know what’s caused them. We try to bring all this to light so we can reduce those repeatable offenses.”

Favorable Results

The most impressive aspect of my conversation with Jim and Clarence was discovering how deeply they care about customers and how eager they are to improve not just Microsoft’s customer support, but also Microsoft’s products. As Jim put it, “I think customers would be amazed to know how much focus we put into understanding customer pain and making sure product groups in the company understand that pain. So many supportability fixes, solutions, scenarios are addressed in the products. We’re really trying to learn from groups that have done it well and make that a best practice for other products struggling in that area.” (For more information on ExRAP, see <http://www.microsoft.com/technet/itshowcase/content/exchrapissues.mspx>.)



Karen Forster

(karen@windowsitpro.com) is editorial and strategy director for *Windows IT Pro* and *SQL Server Magazine* and former director of Windows Server User Assistance at Microsoft.

Did You Know?

Daylight Savings Time starts March 11 and ends November 4 this year! Get a time zone update for Windows XP and Windows 2000 at <http://pentonmedia.whatcounts.com/?ctl=48F14:BC98A54973398492F8FAA235AFE7C99>.

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EDITORIAL

Editorial and Strategy Director

Karen Forster karen@windowsitpro.com

Executive Editor

Amy Eisenberg amy@windowsitpro.com

Technical Director

Michael Otey mikeo@windowsitpro.com

Senior Technical Editor

Diana May dmay@sqlmag.com

Systems Management

Barb Gibbens Deputy Editor
bgibbens@windowsitpro.com

Karen Bemowski Senior Editor
kbemowski@windowsitpro.com

Caroline Marwitz Associate Editor
cmarwitz@windowsitpro.com

Caroline Marwitz Associate Editor
cmarwitz@windowsitpro.com

Messaging, SharePoint, and Office

Anne Grubb Senior Editor
agrubb@windowsitpro.com

Gayle Rodcay Senior Editor
grodca@windowsitpro.com

Brian Winstead Assistant Editor
bwinstead@windowsitpro.com

Brian Winstead Assistant Editor
bwinstead@windowsitpro.com

Networking and Hardware

Jason Bovberg Senior Editor
jbovberg@windowsitpro.com

Lavon Peters Senior Editor
lpeters@windowsitpro.com

Megan Bearly Assistant Editor
mbearly@windowsitpro.com

Megan Bearly Assistant Editor
mbearly@windowsitpro.com

Security

Renee Munshi Senior Editor
rmunshi@windowsitpro.com

Renee Munshi Senior Editor
rmunshi@windowsitpro.com

SQL Server

Dawn Cyr Senior Editor
dcyr@sqlmag.com

Dawn Cyr Senior Editor
dcyr@sqlmag.com

Production Editor

Christan Humphries chumphries@windowsitpro.com

Christan Humphries chumphries@windowsitpro.com

Editorial Assistant

Sam Davenport sdavenport@windowsitpro.com

Sam Davenport sdavenport@windowsitpro.com

Administrative Assistant

Mary Waterloo mwaterloo@windowsitpro.com

Mary Waterloo mwaterloo@windowsitpro.com

News Editor

Paul Thurrott news@windowsitpro.com

Paul Thurrott news@windowsitpro.com

Technology Pro Community Editor

Dan Holme danh@intelliem.com

Dan Holme danh@intelliem.com

Senior Contributing Editors

David Chernicoff david@windowsitpro.com

Mark Joseph Edwards mje@windowsitpro.com

Kathy Ivens kiveness@windowsitpro.com

Mark Minasi mark@minasi.com

Paul Robichaux paul@robichaux.net

Mark Russinovich mark@sysinternals.com

Mark Russinovich mark@sysinternals.com

Contributing Editors

Bob Chronister bob@windowsitpro.com

Jerry Cochran jerryco@microsoft.com

Sean Deuby sdeuby@windowsitpro.com

Jeff Felling jeff@blackstatic.com

Brett Hill brett@iisanswers.com

Darren Mar-Elia dmarelia@windowsitpro.com

Sue Mosher exadmin@turtleflock.com

Tony Redmond tony.redmond@hp.com

Ed Roth eroth@windowsitpro.com

William Sheldon bsheldon@interknowlogy.com

Randy Franklin Smith rsmith@montereytechgroup.com

Orin Thomas orin@windowsitpro.com

Douglas Toombs help@toombs.us

Ethan Wilansky ewilansky@windowsitpro.com

PRODUCTS & REVIEWS

Senior Editor, Products

Dianne Russell drussell@windowsitpro.com

Product Editor

Blake Eno beno@windowsitpro.com

ART & PRODUCTION

Senior Art Director

Larry Purvis lpurvis@windowsitpro.com

Art Director

Layne Petersen layne@windowsitpro.com

Production Director

Linda Kirchgessler linda@windowsitpro.com

Senior Production Manager

Kate Brown kbrown@windowsitpro.com

Assistant Production Manager

Erik Lodermeier elodermeier@penton.com

Production Assistant

Tina Parker tparker@penton.com

CUSTOM MEDIA

Custom Director and SQL Server Business Manager

Michele Crockett mcrockett@windowsitpro.com

Michele Crockett mcrockett@windowsitpro.com 970-203-2924

Group Editorial Director

Dave Bernard dbernard@windowsitpro.com



Penton Media, Inc.

John French

Chief Executive Officer

Eric Lundberg

Chief Financial Officer

James Ogle

Vice President, Finance

Colleen Zelina

**Sr. Vice President, Human Resources
& Organizational Effectiveness**

Darrell C. Denny
ddenny@penton.com

**President, IT, Lifestyle, Food/Retail
Media Groups**

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Group Publisher

Kim Paulsen kpaulsen@windowsitpro.com

Group Administrative Manager

Danna Varnell dvarnell@windowsitpro.com

Associate Publisher

Peg Miller pmiller@windowsitpro.com

Group Sales Manager

Jeff Lewis jlewis@windowsitpro.com
970-613-4960

eMedia Strategist

Chad Phelps cphelps@windowsitpro.com
970-203-2690

ADVERTISING SALES

Northwest Sales Manager

Jeff Carnes jcarnes@windowsitpro.com
678-455-6146

Northwest Account Executive

Kristi Kelley kkelley@windowsitpro.com
970-203-2818

Southwest Sales Manager

Chrissy Kontras ckontras@windowsitpro.com
970-203-2883

Southwest Account Executive

Scott Eastman seastman@windowsitpro.com
970-613-4922

Eastern Sales Manager

Lisa Rogers lrogers@windowsitpro.com
404-355-7494

Eastern Account Executive

Doug Hay dhay@windowsitpro.com
970-613-4931

Southwest and Eastern Client Services Manager

Karen Shaw-Lafferty kshaw@windowsitpro.com
970-203-2967

Northwest Client Services Manager

Michelle Andrews mandrews@pentontech.com
970-613-4964

Ad Production Supervisor

Glenda Vaught gvaught@pentontech.com

REPRINTS

Reprint Sales

Joel Kirk jkirk@penton.com
216-931-9324
888-858-8851

MARKETING & CIRCULATION

Director of Circulation

Marie Evans mevans@penton.com

eMedia Marketing Managers

Matthew McMillan mmmcmillan@penton.com
Chris Sigfrids csigfrids@penton.com

Marketing Project Coordinator

Shay Black sbblack@penton.com

Renewal Marketing Manager

Tricia McConnell tricia@windowsitpro.com

EMEA Circulation Marketing Manager

Irene Clapham irene@windowsitpro.com

Marketing and Research Director

Demian Straka dstraka@windowsitpro.com

Marketing Communications Manager

Amy Reitz areitz@windowsitpro.com

Lead Generation Marketing Managers

Katie Birmingham kbirmingham@penton.com
Sandra Lang slang@penton.com

Restore and Maintain Peak Performance

Eight things you need to know – a special report

As an IT Professional, you know the importance of maintaining system performance and reliability. Your team is the one called to the rescue when desktops or servers crash, slow down or freeze. Many of these issues stem from a single, hidden source: disk fragmentation.

1. Reliability issues commonly traced to disk fragmentation:

Crashes and system hangs/freezes; slow boot times and boot failures; slow back up times and aborted backup; file corruption and data loss; errors in programs; cache issues; hard drive failures.

Having files stored contiguously on the hard drive is a key factor in keeping a system stable and performing at peak efficiency. Even a small amount of fragmentation in your most used files can lead to crashes, conflicts and errors.

2. The weak link in today's computers:

A computer system is only as fast as its slowest component. The disk drive is by far the slowest of the three main components of your computer: CPU, memory and disk. Even with the fastest CPU system performance would be affected by disk fragmentation.

3. Is real-time, automatic defragmentation needed in today's environment?

More than ever! Large disks, multimedia files, applications, operating systems, system up-dates, virus signatures — all dramatically increase the rate of fragmentation. Fragmentation increases the time to access files for all common system activities including opening and closing Microsoft® Word documents, searching for emails, opening web pages and performing virus scans. To keep performance at peak, fragmentation must be eliminated instantly.

4. Increased server uptime:

Fragmentation can cripple server performance and reliability resulting in downtime and lost production.

Diskeeper can easily and safely be used on your servers including: file and print, web, domain controllers, SQL, Exchange, and any other database or application servers.

5. Virtualization and fragmentation:

Server virtualization can be used to reduce the number of physical systems for more efficient CPU utilization. However, there is a downside; the disk subsystem must now account for increased disk I/O. Disk fragmentation is the primary cause of unnecessary I/O overhead. Automatic defragmentation is more important than ever for maximum performance.

6. Hidden scheduled defragmentation costs:

Scheduled defragmentation is not "free" — it has heavy hidden costs, such as IT time to set and monitor defrag for every system. This results in either staying after hours to defrag, giving the users administrator privileges (not likely!), break-fix handlings, or more often *no defrag whatsoever*.

7. How do I find out how much fragmentation I have?

Download a free trial version of new Diskeeper 2007 at:

www.diskeeper.com/winitpro

Install it, select a volume, select Analyze and view the report.

8. Advanced, automated defragmentation:

Maintaining systems can be a daunting task - maintenance, including regular defragmentation, must take place regularly to keep them running at peak levels. However, with constant uptime required, scheduling such processes to run at the right times can be



Diskeeper's interface shows fragmentation levels and relative location of all the files and folders on the selected volume.

tricky, since while running they pose a considerable drain on system resources.

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DNS Commands and Managing Servers

Although all of the recommendations Mark Burnett makes in his article "Segregate Your DNS Servers" (September 2006, InstantDoc ID 92660) are good and the content is accurate, the article should have noted that some of the commands it contains significantly alter the manageability of a Windows 2003 DNS server.

Most Windows system administrators are used to working in a GUI-driven environment. The more proficient administrators have at least passing familiarity with the command line. However, using the recommended command

```
dnscmd /Config /RPCProtocol 0
```

results in a DNS server that is unmanageable via either GUI or the DNSCMD utility. Attempting to connect to the system either remotely or from the local console with the dnsmgmt.msc console will fail, and executing the dnscmd.exe utility to connect to the server results in an error 1722 (RPC server not available). Although this configuration might be desirable in a very locked down environment, there needed to be a qualifying note included in the article explaining this effect, such as a suggestion that the configuration be set via a script so that it can be quickly reversed if system changes are desired without having to resort to BIND-like editing of the zone or other configuration files.

It should also be noted that running

```
dnscmd /ZoneAdd ./Primary
```

will result in the server being unable to resolve any host that is not listed in a zone for which the server is authoritative or hosts as a secondary zone, or that is explicitly listed in the %windir%\system32\drivers\etc\hosts file. Although this might be obvious to a more seasoned Windows administrator, I suspect there are a large

number of Windows admins who read your magazine who might not be immediately aware of the effect of being "root" from a DNS perspective.

—Levi Spears

Postini Pricing

I read the Buyer's Guide "Antispam Solutions for Business" (January 2007, InstantDoc ID 94326), and I think it's a little misleading to list Postini's Perimeter Manager Enterprise Edition

as costing \$43,000 for two years and up to 1,000 users. You can purchase the Perimeter Manager solution for a small to medium-sized business: I've got a contract for 150 users and it costs me less than \$5,000 a year. I believe Postini's pricing is competitive, but a \$43,000 price tag in a table where the pricing for other products is listed at \$2 per month can be misunderstood pretty easily.

—Andy Oggenoff

Upgrading to Vista

I read Karen Forster's IT Pro Perspective article "The Value of Vista, Office, and Exchange" (January 2007, InstantDoc ID 94455) and wanted to respond to her question about plans to upgrade. I'm the director of a five-person IT department that supports a 500-user, 20-location company. Because our organization replaced 80 percent of our desktops with thin clients, we don't have a large base of Windows XP workstations. Our largest XP installed base is our mobile laptop users. Our focus has been and will continue to be the enterprise applications that we use to run the business. We will continue to keep our data in the datacenter and host our applications on the network. We

will keep using VPN and Terminal Services to provide internal and external access to applications and data.

In the past, there was a huge need to upgrade Windows at the desktop

because it was missing things or was buggy. I really don't see that now. XP is secure, reliable, and plug-and-play. After upgrading to Vista, users will still need to purchase third-party products for everything they purchased third-party products for in the past. Like XP, Vista won't provide the tools users

are going to need: They'll

still need access to enterprise apps, an office suite, and everything else. Vista is just the OS. I know Microsoft claims that Vista will cost less to maintain, but even Microsoft admits that it's a small margin. I expect the savings would disappear if end-user and IT training were included, not to mention the cost of porting the odd apps to the new OS. By the time that margin of cost reduction pays for itself, it will be time to move to the next OS. We'll be replacing XP only as part of the hardware replacement cycle.

I don't mean to sound negative. Microsoft has done a great job on Vista and deserves credit for where business computing is today. Home users will probably be totally impressed with the new look and feel. But business goals are well beyond finding a good desktop OS. I think Microsoft knows this, and that's why it's offering an ever-increasing line of application servers and packing capabilities such as VoIP in the next release of Exchange. I'll be interested in the new and improved Terminal Services capabilities in Longhorn Server, but Vista isn't much more than a blip on my radar.

—Nate McAlmond

InstantDoc ID 95154



EDITOR'S NOTE

Windows IT Pro welcomes feedback about the magazine. Send comments to letters@windowsitpro.com, and include your full name, email address, and daytime phone number. We edit all letters and replies for style, length, and clarity.



_INFRASTRUCTURE LOG

_DAY 15: Our network's too complex to manage. We're not proactive at all; we're just reacting. Help!

_Gil brought in a crystal ball. Says he can peer into the future of our infrastructure.

_DAY 17: I see a better way: IBM Tivoli middleware. It gives us a holistic view of the infrastructure and analyzes the relationship between apps, systems and networks. Fixes problems proactively for more uptime and more storage availability. Plus, it's open, modular and scalable.

_Gil says he saw all that too but forgot to tell us.



Tivoli

Better manage the business of I.T. at:
IBM.COM/TAKEBACKCONTROL/PROACTIVE

What You Need to Know About ...

2007–2008 Microsoft Windows Server Technologies

The next 2 years are going to bring a series of major and significant updates to all of Microsoft's Windows Server products, as well as an exciting series of new product releases aimed at ensuring that everyone's favorite software giant hits every conceivable portion of the server software market. However, even the most cynical Microsoft customers should be impressed with the sheer volume of server technologies the company is planning to introduce. So many technologies, in fact, that this article can serve only as a cursory overview, and one that I'll try to expand on in the coming months. In the meantime, here's what Microsoft has up its sleeve.

Windows Server 2003 Service Pack 2

With Windows Server 2003 Service Pack 2 (SP2), due out in the first quarter of 2007, there's much less deployment pain to fear than there was with SP1, which included major new features. Instead, SP2 is a more typical service pack that bundles all of the previously released hot fixes and patches (including SP1) into a single, easy-to-deploy update. It also includes a number of new features, and although some are quite interesting, none are major.

The most important thing you need to know about SP2 is that there'll only be one version of this service pack. Whether you're running any 32-bit or 64-bit version of Windows 2003, Windows Server 2003 Enterprise x64 Edition, Windows Server 2003 Release 2 (R2), or even Windows XP x64 Edition, a single SP2 version will update your entire system. You won't have a confusing slew of slightly different SP2 releases to worry about.

So what's new? SP2 includes Microsoft Management Console (MMC) 3.0, which was introduced in R2 but is now available to all Windows 2003 users. It also includes the Scalable Networking Pack and Windows Deployment Services (WDS) so that Windows 2003 users can deploy Vista clients. WDS can be used in three modes: Legacy (in which it works like a Microsoft Remote Installation Services—RIS—server), Mixed (in which you can use both RIS and WDS tools and technologies), and Native (WDS only).

Windows 2003 SP2 will initially be made available as an optional download, via Microsoft Update, for its first three months of availability. After that, it will be deployed via Automatic Updates as a critical update, although businesses will be able to block SP2 for one year. However, after that year elapses, SP2 will become a mandatory update.

Windows Home Server

A few years back, I first wrote about Windows Home Server (currently code-named "Q" but previously code-named "Quattro"), but this highly confidential project has been developed under a fog of secrecy that Microsoft has rarely been able to sustain. At the Consumer Electronics Show (CES) in January 2007, however, the company finally announced its plans for a home server. In addition, while this product won't have any impact on the majority of businesses, it looks like a fascinating option for home-based and very small businesses.

Windows Home Server is unlike any other Windows Server product. It won't support Active Directory (AD) domains or any other kind of directory, although Microsoft did briefly investigate that possibility. Instead, Home Server will provide a few key pieces of functionality, the most intriguing of which is its storage technology. Windows Home Server will provide automatic backup for all of the PCs in a user's home, and by using a new patent-pending Single Instance Store (SIS) technology, it will achieve dramatic compression results. 17GB to 19GB of data, I'm told, can be compressed down to 300MB of backups. Microsoft will employ an image-based, full-PC backup with incremental backups thereafter, as well as document and data backups.

Storage on the server is handled in an obvious yet innovative way. Instead of using drive letters, Windows Home Server will aggregate all of your storage into a single storage pool, no matter how many drives you add. You can hot-add internal and external storage, whether Serial ATA (SATA) drives or USB devices, at least on the servers that will support this product (standalone Windows Home Server software will also be made available, so you will be able to install it on your own machines). What's interesting about this approach to storage is that users can specify certain data files—such as digital photos—as "important." Windows Home Server will ensure that it backs up at least two copies of "important" files, one each on two different physical drives, increasing the chance that one copy will survive in the event of a hardware failure.

Windows Home Server will also provide remote access over the Internet to any connected PC on the network running XP SP2 and later, including Vista, and to the server itself, providing the type of functionality one now associates with solutions like GoToMyPC and LogMeIn.

PC builders such as HP are coming out with innovative Windows Home Server hardware, although you can always



Paul Thurrott

(thurrott@windowsitpro.com) is the news editor for *Windows IT Pro*. He writes a weekly editorial for *Windows IT Pro UPDATE* (<http://www.windowsitpro.com/email>) and a daily Windows news and information newsletter called *WinInfo Daily UPDATE* (<http://www.wininformant.com>).

Did You Know?

For an in-depth preview of Windows Home Server, including a look at its capabilities for expandable storage, PC backup, remote access, and sharing capabilities, visit Paul Thurrott's SuperSite for Windows at http://www.winsupersite.com/reviews/whs_preview.asp



_INFRASTRUCTURE LOG

_DAY 33: Our information is siloed. Unmanageable. People can't access the latest info to make decisions. Gil's resorted to giving everyone access to everything all at once.

_Monitors now outnumber humans 18 to 1.

_DAY 36: It's clear to me. We need an IBM Information On Demand middleware solution. Info will be liberated from the silos—available when we need it, whatever the format. Accurate and in context. Now we can make smarter decisions and deliver real business value.

_Access is a beautiful thing.



Information Management

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build your own. Although pricing wasn't available at the time of this writing, Microsoft understands that this product must sell to the consumer market, so expect the company to be aggressive in this area.

Windows "Cougar" Small Business Server

Due in early 2008, Windows Cougar, Microsoft's next major version of Small Business Server (SBS), will be based on Windows Server Longhorn, which I cover a bit later. At this point, Cougar is less well defined than Windows Home Server. We know that Cougar will include Longhorn Server, Exchange Server 2007, Windows SharePoint Services 3, System Center Essentials 2007, SQL Server 2005 Workgroup Edition, and ISA Server 2007. We know that it will serve the same market that SBS did—small businesses with 75 or fewer PCs. We also know that it will include technologies related to PC and data protection, remote access, and antivirus/anti-spyware. More specific details, however, are unknown. Stay tuned.

Windows "Centro" Midmarket Server

Microsoft's been talking up its midmarket server offering, code-named Centro, since early 2006, and with the first beta release late last year, this product is finally shaping up. Unfortunately, because of non-disclosure agreement issues, I can't discuss this product in detail yet, but if you imagine a multi-server version of SBS that works with far more users, you're on the right track. I'll write more about Centro in the coming months.

Windows Server Longhorn

Windows Server Longhorn, or Longhorn Server, is shaping up to be the biggest Windows Server release since Windows 2000. Like Vista, Longhorn Server has been redesigned from the ground up in a modular fashion, which has several benefits. First, a roles-based model makes Longhorn Server easy to install and manage, and features specific to certain functional roles aren't installed until an administrator decides they're necessary. This functionality significantly reduces the server's total attack surface. Second, because Longhorn's roles understand exactly which dependencies are

required whenever features are added and removed, users never have to go back manually, as they did with Windows 2003's SCW, and reestablish security. Finally, Longhorn Server will be available in a stripped-down Windows Server Core version that will provide only basic infrastructure services with no GUI at all. Enterprises have been asking for this feature for years.

Windows Server Core provides access to seven core services—Win2K Server Terminal Services, Internet Authentication Service (IAS), Microsoft Internet Information Services (IIS) 7.0, Windows SharePoint Services 3, Windows Server Virtualization (see below), printing, and media streaming—all via a command-line interface, although you're free to use GUI tools if you want to control the server remotely. (You can also administer Windows Server Core via Terminal Services.) Note that because Windows Server Core doesn't include the .NET Framework, it can't support certain features in this first version. But Microsoft has big plans for the next version, which will be bundled with Longhorn R2 in 2009.

The Longhorn Server feature set is so vast that I can only hit the high points here. It will include the .NET-based Windows PowerShell command-line environment for scripting and automation. The new Windows Server Manager, based on MMC 3.0, will provide a friendly and task-based approach to managing your Windows Server's various roles. (And yes, you can finally install multiple roles simultaneously.) The newly rebuilt Windows Firewall supports bidirectional filtering and is fully policy-controlled via Group Policy and AD. Longhorn's Web server, IIS 7.0, is built on the same roles-based underpinnings as Longhorn itself, providing better security and a smaller functional footprint.

As with Vista, Longhorn's TCP/IP networking stack has been completely rewritten and now supports almost real-time analysis and control of everything that moves through it. The stack also includes the ability to fine-tune network window sizes on the fly. Previously, windows were hard-coded to certain small sizes, hindering performance and ease of use.

To protect the server from attack and reduce downtime, Longhorn Server includes a number of technologies—such as BitLocker Drive Encryption, Secure Startup, Windows service hardening, and the Restart Manager, which reduces the need to reboot by 50 percent by restarting individual services instead of the full

system when a patch is installed. In addition, because of its roles-based approach, Longhorn Server is always in "shields up" mode, regardless of the roles you've configured. As roles and features are added and removed, the server ensures that it's always configured for the best security, automatically.


Longhorn Server, finally, includes Network Access Protection (NAP), providing businesses with a way to quarantine connecting clients that don't meet established security baselines. While in quarantine, these machines can be updated and swept of any malware, then allowed into the corporate network. Longhorn Server also includes Windows Rights Management Services (RMS), to provide businesses with a way to protect sensitive corporate data from prying eyes.

A new feature called Read-Only Domain Controller is perfect for branch offices, where servers are typically maintained less stringently and are more vulnerable to physical theft. With a Read-Only Domain Controller, replication is unidirectional only, and directory passwords aren't stored locally. If the server is stolen, the thieves can't get at sensitive corporate data.

Longhorn Server is on track to ship by the end of 2007, Microsoft says. A Beta 3 release should be available in February 2007.

Windows Server Virtualization

Due within 180 days of the release of Longhorn Server, Windows Server virtualization will be a free add-on for Longhorn Server that dramatically increases the capabilities and performance of a virtualized environment running on Windows Server. Windows Server virtualization is essentially a hypervisor environment that runs on Intel or AMD-based hardware, along with a Windows Server Core-based Longhorn role that runs in the primary, or parent partition. Users install and run virtualized environments in child partitions.

Windows Server Virtualization will support x64 host and guest OSs and is compatible with today's Virtual Hard Disk (VHD)-based virtual environments, which you might have created in Microsoft Virtual PC 2007 or Microsoft Virtual Server 2005 R2. In addition, Windows Server virtualization will natively support multiple processors, functionality that, when combined with the memory possibilities on x64 systems, will provide dramatic scalability benefits. 

InstantDoc ID 94726



_INFRASTRUCTURE LOG

_DAY 34: This indecision is sinking the business.
How do we move to a service oriented architecture?
Where do we start? Can we reuse what we have?

_Infrastructure quicksand!! We waited too long. I'd
throw Gil my tie, but it's a clip-on.

_DAY 37: A lifeline: IBM WebSphere middleware! It's
already helped thousands of customers build an SOA.
Adapters give us a standardized approach to integrating
apps from SAP, Oracle and others. And it lets us reuse
what we have, saving time and money.

_Oh, great. There's sand in my yogurt.



WebSphere®

Download the reuse and connectivity kit at:
IBM.COM/TAKEBACKCONTROL/CONNECT



Monitor Content Flow and Automate Compliance

Code Green Networks announced the Content Inspection Appliance I500 (CI-I500) for small-to-mid-sized businesses (SMBs), which automatically identifies, monitors, and protects structured and unstructured content in all languages and formats. The CI-I500 can discover data leaks in your organization and implement automated policies to prevent them. For example, if the CI-I500 detects unauthorized transmission of sensitive information, it invokes management-defined policy to log, alert, block, or reroute the transmission. The appliance enforces security policies in most TCP protocols, including SMTP, FTP, HTTP, and Web mail.

www.codegreennetworks.com,
408-213-2300

Product Spotlight

Free, Enterprise-Ready Virtualization Alternatives

Server virtualization is a hot technology. Giving one physical server the ability to handle multiple workloads is an exciting capability, and one that has the potential to dramatically reduce the costs of computing. But what about the price tags that today's top providers of virtualization technologies carry? How can you dive into this growing market if your financial resources are limited?

Enter Virtual Iron 3.I, from **Virtual Iron Software**. I spoke with Mike Grandinetti, the company's chief marketing officer, who was excited about Virtual Iron's pricing structure.

Virtual Iron Enterprise Edition 3.I, the company's enterprise-class virtualization platform, supports unmodified Windows and Linux systems and is priced at \$499 per socket on a perpetual license basis. Virtual Iron also makes available free production-ready versions of Virtual Iron Enterprise Edition 3.I on its Web site. The first version offers single-server virtualization and management and supports as many as four sockets and unlimited cores. It lets you consolidate Windows and Linux virtual servers, run 32- or 64-bit workloads from as many as eight CPUs, create and deploy virtual appliances, and template and clone virtual servers. The multiserver virtual infrastructure management version has the same features as the single-server version and also includes advanced virtualization management and policy-based automation capabilities.

www.virtualiron.com, 978-849-1200

Examine the Health of Group Policy

SDM Software released its first GPExpert product, GPHealth Reporter I.O, an application that helps you analyze how Group Policy is functioning on your systems. GPHealth Reporter collects information from a variety of sources on a target system and presents it to you in a concise format, using red or green health status indicators. Potential problems that GPHealth Reporter finds are highlighted, and you can quickly access targeted guidance for solving them. Examples of the information GPHealth Reporter provides include Group Policy processing time, slow link and loopback status, and other computer and user details. The software can send information to a printer, an Excel spreadsheet, or PDF file. You can download a 10-day trial of GPHealth Reporter from the SDM Software Web site.

www.sdmsoftware.com,
415-670-9302



sdmsoftware

XenSource Announces Family of Virtualization Products

XenSource announced the XenSource XenServer product family, which includes XenEnterprise, XenServer, and XenExpress. All XenServer products are based on the open-source Xen hypervisor, a software abstraction layer that lets a physical server run one or more virtual servers. XenEnterprise is an enterprise-grade Xen virtualization solution that supports Windows and Linux OSs and lets you install and manage guests on the same server with no imposed limit to concurrent virtual machines, network storage support, memory, or resource controls for the CPU. XenServer is a virtualization platform designed for Windows standard server environments, and XenExpress is a free, production-ready solution that lets you get started using Xen virtualization. XenExpress is available as a download on XenSource's Web site.



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Top

Exchange Disaster Recovery Tips

You know that someday disaster could strike at your Exchange environment—probably at the worst possible time. Regardless of whether your Exchange organization is large or small, losing mail services has a big impact on your business. These seven tips will help you in designing, planning, testing, and implementing an Exchange-specific disaster recovery plan.

Tip 1: Assess Required Service Levels

Email is a vital function, perhaps never more so than when disaster strikes and mail services aren't available. You need to make sure all email users at all levels of the business agree about the response times and service levels needed. Clearly explain to users how IT will restore email services in different disaster scenarios.

Recovery time will depend largely on how long it will take to recover Active Directory (AD), the Exchange system, and Exchange databases from backup media. Therefore, to gauge response time, first calculate the total amount of time needed to recover a complete database and a complete server. Doing so lets you estimate the amount of time needed to recover an Information Store (IS) or a complete server in optimum circumstances. You'll then have to build in additional recovery time for more severe disasters to accommodate dependencies such as faulty or inoperative network infrastructure and other failing services (e.g., SANs, NICs). To shorten recovery time, you might also opt to decrease database sizes, which will almost automatically require additional databases and storage groups (SGs). Each SG, with a maximum of four per server, can have as many as five databases. Because each SG creates its own log files, you'll then want to separate the transaction-log sets on dedicated disks. Spreading the storage load in this way can help you recover the databases more quickly.

Tip 2: Create a Disaster Recovery Information Kit

The kit should include detailed information about server names, passwords, installations, patch and driver history, configuration history, and licensing information. Also include in the kit: disk and partition configurations, your Exchange organization name, administrative group and routing group names, system state information, and Microsoft IIS metabase backups. Store recent backups or printed information about where to find other backup media, store installation media, system state backups, and contact information about who or what type of IT pro can and will restore what data. If you have a SAN, include contact information for your SAN specialist.

Also you should regularly extract AD user information, such as email addresses, by using a utility such as LDIFDE or CSVDE and add this information to the kit. For example, you'd use the following command to export directory objects, including mail addresses:

```
ldifde -f C:\export.ldf -v
```

Tip 3: Back Up the Cluster Quorum Disk

If you're using an Exchange cluster, you'll need to include in your disaster recovery plan backing up and restoring the cluster quorum disk as well as the shared disks. Without the quorum disk, you won't have vital cluster-configuration data and more important, your cluster will no longer start when disk signatures have changed—for example, when you replace disks, use storage-management tools to change the disk configuration, or reconfigure the array on a shared bus. To back up the quorum disk, you'll need to perform a full computer backup or a Windows system state backup.

On Windows NT 4.0 and Windows 2000 pre-Service Pack 3 (SP3), you could use the *Windows 2000 Resource Kit* Cluster Tool (clustool.exe) to back up the configuration of the complete cluster, including disk signatures. In case of a lost quorum and when the signature of the quorum disk changed, you can use the Win2K resource kit's Dumpcfg utility (dumpcfg.exe) to manually write the signature back to the quorum disk. In Windows

continued on back

Server 2003, you can use the cluster service and the *Windows 2003 Resource Kit* Cluster Server Recovery Utility (clusterrecovery.exe) tool to fix a lost quorum disk.

Tip 4: Prepare Now; Minimize Stress Later

Schedule recovery tests to practice recovering your Exchange server. Use test labs and the Recovery Storage Group (RSG) to check whether database backups were successful. You could, for instance, extract random mailboxes from the RSG by using the Exchange Mailbox Merge (ExMerge) utility to check the data and the Exchange Disaster Recovery Analyzer (ExDRA) tool to check data integrity. In addition, backups are the only way to recover improperly deleted email messages and with the recent implementation of the new Federal Rules of Civil Procedures (FRCP) that greatly tighten the rules for storing corporate email for the purposes of potential lawsuits, it is more important than ever to have an e-discovery plan that integrates with your backup and recovery plans.

Tip 5: Include AD in Your Recovery Plan

In many cases, recovering Exchange also means recovering Active Directory (AD). Small companies often have only one server for both Exchange and AD, and even in very large environments, a minor mistake in AD can have consequences for the complete Exchange and AD configuration. Since Exchange Server 2003 and Exchange 2000 Server rely heavily on AD, make sure you frequently back up your domain controller's (DC)'s system state, which includes AD, the registry, boot files, certificate services, Microsoft IIS, COM+, and Sysvol information. Perform system-state backups at least as often as you back up Exchange.

Thoroughly check and test your system-state backup and restore capabilities and make sure that the NTDS and Sysvol volumes have enough space to perform a complete system-state restore. Make sure that your recovery plan includes procedures to restore AD both authoritatively and non-authoritatively.

Tip 6: "Back Up" Your Exchange Expert

Many organizations have a resident Exchange expert—the one person who fully knows the Exchange infrastructure. Your disaster recovery plan should specify who will back up and, if necessary, replace your Exchange guru should he or she be unavailable in a disaster. Select an employee who will back up the Exchange expert, and make sure that employee and the Exchange guru meet regularly—to bring the backup employee up to speed on your organization's Exchange procedures.

Tip 7: Exchange Troubleshooting Assistant

The Exchange Troubleshooting Assistant (ExTRA) consists of the following three components.

- Exchange Performance Troubleshooting Analyzer (ExPTA)
- Exchange Mail Flow Analyzer (ExMFA)
- Exchange Disaster Recovery Analyzer (ExDRA)

The Exchange Server Disaster Recovery Analyzer Tool (ExDRA) can help administrators troubleshoot Exchange-database-related problems. ExDRA collects configuration data and header information from databases and transaction-log files and creates a detailed list of database problems and instructions for resolving them. Familiarize yourself with ExDRA before a disaster strikes, so that you'll be adept at using the tool and interpreting its information when you're under pressure during a recovery. You can download the free ExDRA tool at <http://www.microsoft.com/downloads/details.aspx?familyid=4BDC1D6B-DE34-4F1C-AEBA-FED1256CAF9A&displaylang=en>.

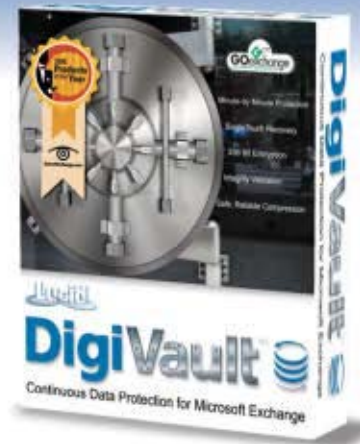
When databases won't mount or you suspect Information Store (IS) problems, run ExDRA to find inconsistencies and errors. ExDRA can check dismounted ISs to see whether the IS shutdown was clean or dirty. Additionally, ExDRA will tell you which `eseutil.exe` and `lsinteg.exe` commands you need to run to check and repair the database(s) and transaction-log files. ExDRA will perform for you the checks you'd typically do by using these commands:

```
isinteg -s ServerName -test allfoldertests
```

which checks the higher-level IS database-table-structure integrity (replace *ServerName* with the name of your Exchange server), and

```
eseutil /g
```

which checks the physical database pages. ExDRA will run similar commands for you to check IS integrity and database consistency, then will then give suggestions and examples for fixing the problems.



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Patch Management Solutions

See how WSUS stacks up against 2 popular ISV offerings

Keeping software patched and secure is one of the biggest ongoing challenges that network administrators face. Software vendors are constantly playing catch-up with those who accidentally or purposefully discover flaws in their products. At the time of this writing, Microsoft had released 55 critical patches for Windows XP Service Pack 2 (SP2) and 48 patches for Windows Server 2003 SP1. Patch management software is a valuable tool that network administrators can use to automate the software patching process.

Modern patch management solutions address multiple challenges. They must deliver patches from vendor patch repositories to vulnerable clients in a robust, efficient, and unobtrusive manner. They must provide centralized control over the patch approval process and allow removal of problematic or unnecessary patches. And they must provide reports listing vulnerabilities, patch success/failure, and network summary information. The most flexible patch management solutions accommodate a range of network topologies, client configurations (e.g., mobile, desktop), and bandwidth availabilities.

I worked with three patch management products designed to address the challenges of software patching: Microsoft Windows Server Update Services (WSUS) SP1, **PatchLink** Update 6.3, and **Shavlik Technologies'** Shavlik HFNChkPro Plus 5.8.

WSUS SP1

WSUS SP1 is a free product from Microsoft that joins together Microsoft's Windows Update patch repository and Windows Automatic Updates client into a patch management system. WSUS lets you approve patches prior to their deployment. With WSUS, patches can be downloaded from Microsoft once, stored locally, and distributed at LAN speed to clients. WSUS improves on its predecessor, Microsoft Software Update Services (SUS), by distributing patches for Microsoft applications such as Office, SQL Server, and Exchange in addition to patches for Microsoft OSs. WSUS also offers a modest level of reporting.

WSUS combines an unbeatable price (free) with solid patch distribution features. Careful network administrators like to test patches in their environment before deploying them. In WSUS, after you're satisfied with a patch, you can mark it Approved, which allows clients to install the patch. WSUS also lets you create Computer Groups, which can be used to restrict the scope of patch deployment. For example, you can deploy patches to a group of test computers before approving them for the rest of the network. Figure 1 shows the dialog box for approving patches for Computer Groups.

By using the lean, Web-based WSUS interface, you can approve patches manually or based on a policy. For example, an approval policy can automatically approve patches that are rated critical by Microsoft or patches that supersede previously approved patches. WSUS

doesn't download patches until they're approved, so no bandwidth is wasted on patches that will never be deployed.

WSUS can also conserve bandwidth and administrative effort by creating a hierarchy of WSUS servers. This feature lets you balance a large client load across multiple WSUS servers or host patch content closer to clients.

The WSUS reporting module provides useful information about available patches, deployed patches, missing patches, and deployment failures. But WSUS provides only a portion of the patch status reporting that the

Philip Morgan

(pmorgan@aeshen.com)
is a product reviewer for
Aeshen, a product testing
lab.

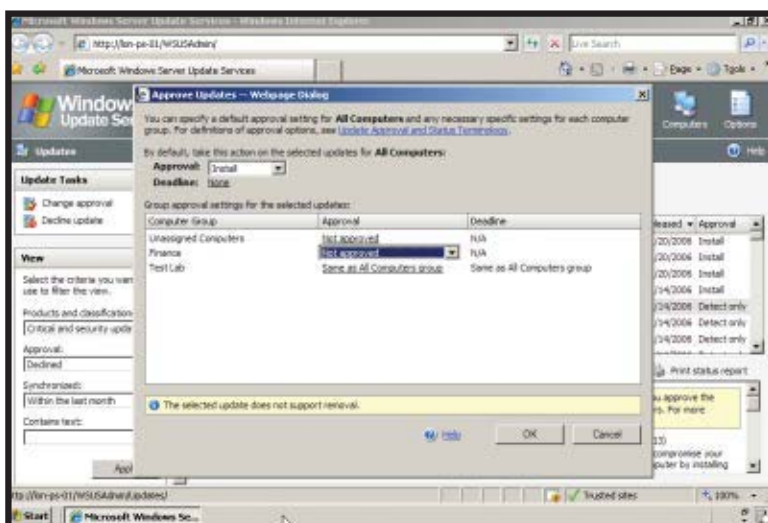


Figure 1: Approving updates for Computer Groups in WSUS

Summary

WSUS SPI

PROS: Well designed, flexible update targeting, patches Microsoft applications and OSs, free

CONS: Patches only Microsoft products, limited reporting, can't push patches to clients

RATING: ◆◆◆◆◆

PRICE: Free

RECOMMENDATION: Recommended for organizations that need a low-cost patch management system focused on Microsoft products.

CONTACT: Microsoft • <http://www.microsoft.com> • 425-882-8080

other products in this review offer.

WSUS relies on Group Policy to configure clients with settings such as which WSUS server to use, how often to check for updates, and what to do with new patches. This dependency could complicate WSUS deployment and troubleshooting. WSUS also lacks the ability to deal with rogue computers (i.e., unpatched computers that aren't configured to use WSUS)—although the Microsoft Baseline Security Analyzer (MBSA) could help identify these systems—and non-Microsoft applications and OSs.

WSUS can't force patches to clients. Its role is to distribute approved patches to clients, which download and install them at defined intervals. This pull topology might have difficulty addressing quickly spreading exploits, such as the Blaster worm, for which you might want to push out a patch immediately.

Overall, I found WSUS to be a capable solution that's tightly focused on the challenge of keeping Microsoft software patched and secure. All-Microsoft shops and smaller enterprises will love the functionality and the price.

PatchLink Update 6.3

PatchLink Update 6.3 is an agent-based, multiplatform patch management product that provides agents for Novell NetWare, Mac OS X, Windows, and several Linux platforms. You use policies to configure the agents to periodically scan for applicable vulnerabilities. You can then schedule deployments of Packages, which are patches for one or more vulnerabilities. PatchLink Update runs on Windows 2003 and, like the other products reviewed, can store patch deployment data in a SQL Server database. PatchLink Update uses SQL Server Express if SQL Server isn't available.

The evaluation copy of PatchLink Update

6.3 came preinstalled on a VMware virtual machine (VM). This was a nice touch that made evaluating the product easier.

PatchLink Update uses a patching cycle that begins by downloading an XML file from PatchLink. This file lists available software patches for the supported software. You then use the Web-based administrator console to schedule or manually initiate scans for vulnerabilities. Based on the results of the vulnerability scan, PatchLink Update distributes patch deployments to agents. The patches can be prestaged on the server or downloaded from software vendor Web sites immediately prior to their deployment. PatchLink Update also can roll back patches after they're installed.

PatchLink Update can accommodate a variety of network topologies by using distribution points. This lets you locate patch content closer to clients or load-balance clients across multiple distribution points. PatchLink Update recognizes and patches vulnerabilities in the supported OSs, Microsoft server and desktop applications, and other popular applications such as Adobe Acrobat and Flash, Mozilla Firefox, Apple QuickTime, and WinZip.

In addition to collecting vulnerability information, PatchLink Update performs an inventory of hardware, services, and installed software. The Web-based interface displays the inventory organized in several ways and with several summary levels (as Figure 2 shows), and this data can be exported in CSV, XLS, and XML formats. Neither of the other products in this review collected such inventory information.

PatchLink Update is also the only product reviewed that includes an interface for creating

Summary

PatchLink Update 6.3

PROS: Flexible permissions assignment model, support for distribution points, good reporting, cross-platform support

CONS: Complicated agent install, especially for Linux clients; expensive for UNIX and NetWare clients

RATING: ◆◆◆◆◆

PRICE: \$1,495 for a server license, plus \$18 per node per year for Windows clients, \$75 per node per year for UNIX and NetWare clients, and \$33 per node per year for Mac OS X clients

RECOMMENDATION: Recommended for organizations that need multiplatform patch management, flexible administration interface permissions, and complete reporting. Its flexibility makes it my pick for Editor's Choice.

CONTACT: PatchLink • <http://www.patchlink.com> • 480-970-1025

system users and assigning role-based permissions. For example, you can give an administrator read-only access to PatchLink Update's inventory data (the Guest role) or full access to a subset of the managed computers.

Even if you've scheduled regular vulnerability scans, PatchLink Update lets you force a vulnerability scan. That way, when a major software vulnerability is discovered, you can use an on-demand scan to more quickly identify and deploy the needed patch.

The PatchLink Update report module is configured with several useful reports. Included are reports (mentioned above) on hardware,

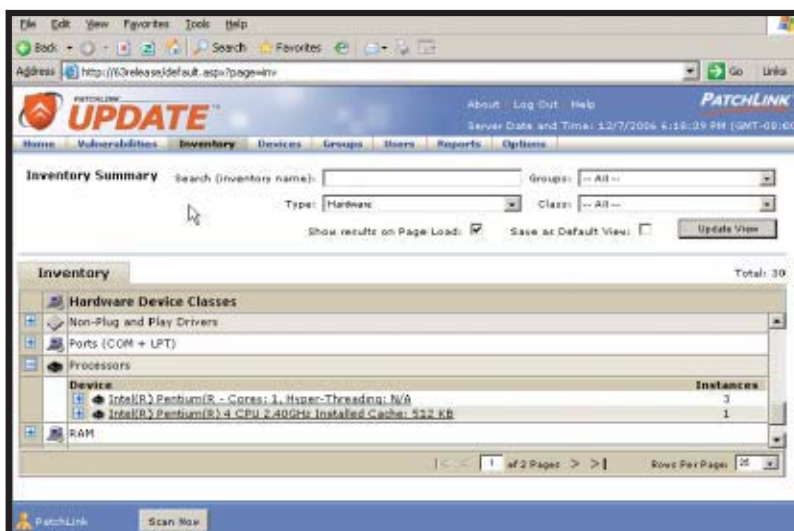


Figure 2: PatchLink Inventory Summary report

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breeze so you can get up and running in minutes vs. hours.

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iHateSpam engines. And, of course, it also supports RBLs and SPF. **Integrated multi-engine antivirus:** Ninja combines the power of multiple high-quality AV engines.

Great end-user control: The policy-based plug-in

architecture allows you powerful, granular control. You can finally rule with an iron fist. **SMART attachment filtering:** Ninja features the first flexible policy-based attachment filter that isn't fooled by extensions. It looks *inside* files to determine their true identity. Your policies decide what happens to all attachments.

Eval at www.sunbelt-software.com/ninjawinb.



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software, and service inventory along with the usual reports on missing and deployed patches. One particularly useful report is the Vulnerability Analysis Report, which summarizes several critical metrics relating to specific unpatched vulnerabilities. All report data can be exported in CSV, XLS, and XML formats.

The PatchLink Update agent proved tricky to install on the Linux Fedora Core 4 client that I included in my testing. The agent requires the Sun Microsystems Java Runtime Environment rather than the GNU Java Runtime Environment packaged with Fedora. This could complicate agent deployment in some environments.

To prevent unauthorized connections to the server, the PatchLink Update agent requires you to enter the server license key during installation. Windows installs can use a customized .msi file to automate this step, but it seems unnecessary to require a license key for a software patching agent.

Overall, I found PatchLink Update to be a capable solution worthy of consideration for multiplatform enterprises. In fact, it's my pick as the Editor's Choice product. Its flexible agent software and full set of features will keep a wide variety of enterprise networks patched and secure.

Shavlik HFNetChkPro Plus 5.8

Shavlik HFNetChkPro Plus 5.8 incorporates a unique combination of push and pull topology choices. The push component uses the Windows Remote Registry service and Microsoft Server Message Block/Common Internet File System (SMB/CIFS) communication from the Console (Shavlik's term for the patch management server) to initiate vulnerability scans on clients. The pull component uses a client agent to initiate communication with the Console. HFNetChkPro Plus supports Microsoft OSs only, but it can provide patches for major Microsoft applications and some non-Microsoft apps, including Adobe Acrobat and Flash and Mozilla Firefox. A separate product, Shavlik HFNetChkPro for Solaris, supports the Sun UNIX OS.

The HFNetChkPro Plus installer makes setup easy by downloading and installing the prerequisite Windows components, which might not be present on a clean server install. Like the other products in this review, HFNetChkPro Plus supports multiple distribution servers and

Summary

Shavlik HFNetChkPro Plus 5.8

PROS: Flexible combination of push and pull updating, easy deployment, usable interface and well-rounded feature set, helpful reports

CONS: Console isn't Web based, inflexible client configuration

RATING:

PRICE: \$38 per seat

RECOMMENDATION: Recommended for organizations that need flexible Windows platform patch management, easy deployment, and solid reporting.

CONTACT: Shavlik Technologies • <http://www.shavlik.com> • 800-690-6911

lets you customize which patches are deployed in response to scan results. For example, you can create a Patch Scan Template to define which patches to look for and a Deployment Template to define how and when missing patches are deployed, how much bandwidth to use, and when client reboots can be tolerated. Like PatchLink Update, HFNetChkPro Plus can combine scheduled patch scans with on-demand scans for a flexible posture in responding to patching needs. HFNetChkPro Plus lets you uninstall patches but only in the reverse order of deployment.

HFNetChkPro Plus works without an agent

on most clients, which should make installation easier but might mean extra configuration on some clients. You might need to configure an XP client's Windows Firewall and Remote Registry service to accept connections from the Console.

With HFNetChkPro Plus, all clients that report to the same Console must use the same configuration settings. (Shavlik plans to resolve this in an upcoming minor version release.) Both WSUS and PatchLink Update have greater flexibility in this area and can accommodate multiple client configurations per server to better match network topology and client needs.

Because of its push topology, HFNetChkPro Plus can manage computers that might otherwise be outside your control. HFNetChkPro Plus's built-in IP Range Scan facilitates a comprehensive network scan that finds any client computers to which you have administrator access. On mobile computers, firewalled computers, and other difficult cases, you can install the HFNetChkPro Plus agent. The agent supports push installation as well as local installation from CD-ROM or USB flash drive, so no independent software distribution infrastructure is needed.

The HFNetChkPro Plus admin interface is a standalone .exe file rather than a Web interface. Also, some scheduled tasks on the Console server execute inside a command



Table 1:	Feature Summary		
	WSUS SP1	PatchLink Update 6.3	Shavlik HFNetChkPro Plus 5.8
Microsoft OS patching	Yes	Yes	Yes
Micosoft application patching	Yes	Yes	Yes
Non-Microsoft application patching	No	Yes	Yes
Agent required	Yes	Yes	No
Web-based management interface	Yes	Yes	No
Reporting	Limited	Yes	Yes
Multiplatform	No	Yes	No
Spyware remediation	No	No	Yes*
*requires add-on product			



Figure 3: HFNetchkPro Plus Executive Summary report

prompt window. Together, these minor points cause HFNetchkPro Plus to feel like a desktop application rather than a service.

HFNetchkPro Plus's prepackaged reports are well done and include a few helpful analysis reports, including the Top 10 Vulnerable Machines and Top 10 Missing Patches, which

Figure 3 shows. Reports such as this help you quickly get a handle on the most serious threats to network health.

HFNetchkPro Plus also has an optional, extra-cost antispyware add-on that was in development at the time of this review.


Overall, I found Shavlik HFNetchkPro Plus a well-rounded patch management product that addresses many of the software patching challenges facing modern enterprises.

Conclusion

All three of the reviewed products provide significant benefits for the overworked system administrator. They all deliver the core functionality of modern patch management solutions: patch approval, patch delivery, and reporting. And most importantly, all three products were successful in delivering and applying patches in my test lab environment. Beyond this core functionality, the three products have significant differences.

WSUS provides the base level of functionality that administrators need to control the Windows Automatic Update client and save bandwidth. Its spartan reporting provides usable information about the status of patch deployment and it can accommodate a variety of network topologies.

HFNetchkPro Plus adds several useful features to the expected core patching functionality. I was impressed with the smart combination of push and pull models for patch management, and the management interface was easy to use, although I would have preferred a Web-based interface.

PatchLink Update also adds several useful features to the core patching functionality. It offers agents for multiple platforms, hardware and software inventory collection, and useful summary and analysis reports that can be easily exported. PatchLink Update also has the most flexible access control model for administrators. Because of its solid functionality in the multiplatform enterprise and its useful features, PatchLink Update is my pick for Editor's Choice. 

InstantDoc ID 94912

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System Center Essentials 2007 Beta 2

The beta's not perfect, but this unified management solution shows promise for SMBs

You've probably heard about Microsoft Operations Manager (MOM), which has been renamed System Center Operations Manager (Ops Manager). If your organization is like most small-to-mid-sized businesses (SMBs), however, you probably realize that these tools offer diminishing returns if you don't have the manpower to implement and maintain them properly, or if the size of your PC and server fleet isn't large enough to warrant management by large-scale tools such as Operations Manager.

That said, a lot of IT shops are caught between the need for an efficient solution to monitor and manage the operations of their fleet and the ominous complexity of the solutions available to date. Enter System Center Essentials 2007 (SCE). Microsoft is targeting SCE to SMBs, touting its simplified interfaces and processes for managing as many as 15 servers and 500 desktops (as of press time; these numbers could change). To see how well Microsoft can deliver on this promise, I took the Beta 2 release of SCE through its paces in a test environment.

Installation

Out of the gate, Microsoft creates some reasonably stout prerequisites for installing SCE. Supported OSs are Windows Server 2003 Standard and Enterprise Editions, Service

Pack 1 (SPI); Windows 2003 R2 Standard and Enterprise; or Small Business Server 2003 SPI. Additionally, you need Microsoft Internet Information Services (IIS) 6.0; Background Intelligent Transfer Service (BITS) 2.0; Microsoft Data Access Components (MDAC) 2.80.1022.0 or later; Microsoft .NET Framework 2.0 and .NET Framework 3.0. You need about 3.5GB of free disk space on the C drive for the installation. I attempted to point the installation of components to an alternate drive with plenty of free space, but there was no working around the disk-space check and I had to make room on my C drive before proceeding with the installation.

During setup, I was prompted to install Microsoft SQL Server 2005 Express Edition or point to an existing SQL Server installation for the System Center Database. I chose to install SQL Server Express. I then had to choose whether I wanted to store updates for client computers on the server or let the clients go to the Internet for their updates. You'll need to weigh the pros and cons of each option, considering your available server disk space, number of clients, and connection to the Internet. I chose to store the updates on the server and specified the disk location where updates would be stored. I was then prompted to enter an account with access to all client systems that would be used to perform manage-

ment tasks on client systems. The full installation, complete with SQL Server Express and database creation, took about 15 minutes on my dual-core Intel Xeon 2.4GHz server.

Configuration

Before you can start to use SCE, you must complete three configuration tasks. The tasks, which you'll see the first time you open the console, rely on wizards to help you configure SCE product features, computers and devices to be managed, and settings for Microsoft Update.

The Product Feature wizard prompts you to select SCE's parameters. Settings include whether to use a proxy server, whether to create a Group Policy Object (GPO) for managed devices, client system remote control, and Agentless Exception Monitoring. Although you can configure and use SCE by using local policy, you reap better centralized control of your environment and will need to jump through fewer hoops, such as manually opening firewall ports, if you take advantage of Group Policy. The wizard ran through the configuration options I specified and completed all steps successfully.

I then ran the Computer and Device Management configuration wizard, which performs a discovery of computers and network devices, lets you select which ones you

Summary

SCE 2007 Beta 2

PROS: All-in-one management tool for SMBs; leverages Ops Manager intelligence

CONS: Beta version contained numerous bugs; systems to be managed must be well updated before they can be brought under SCE management umbrella

RECOMMENDATION: If you struggle with management of your SMB fleet of desktops and servers, you owe it to yourself to give SCE a look.

CONTACT: Microsoft • 800-426-9400 • <http://www.microsoft.com>

want to manage, then performs agent installation on any managed systems you select. The wizard lets you select either Auto or Advanced discovery options. I used the Auto option, and my three Windows XP client systems were discovered in less than a minute. I selected all three systems for management and the agent was queued for installation on the systems. All three, however, failed because they didn't have Windows Installer 3.1. I downloaded the required version from Microsoft and installed it on the three XP systems, but I had to go through the discovery process again to retry the agent installation. On the next attempt, the agent installation was again unsuccessful. This time, however, I was directed to look at the log files to determine

mine the source of the problem. The logs turned up nothing, but I did refer back to the system requirements document and noticed my problem: Although SCE supports a wide array of managed computer OSs, including Windows 2000 SP4, Windows XP must be updated to at least SP2 to run. I don't have a complaint about the requirement for SP2, but tasks such as deploying SP2 are one big way in which SCE should be able to help smaller IT shops. It would be nice if Microsoft could find a way to help SCE users automate getting their PC fleet up to snuff as part of the deployment of this tool rather than saddling potential customers with the task of manually managing software prerequisites.

After ensuring that the test clients all met the requirements, I tried the discovery process one more time. This time the agent successfully installed on all three of my test clients.

I then ran the final task, Configure Microsoft Update Settings. The wizard synchronizes with the Microsoft Update site and asks if you want to download updates for OSs only or from a selection of other systems, including SQL Server and Microsoft Exchange Server. It also prompts you to select the languages for the updates you want to download and the categories of updates to automatically download. Finally, you can choose categories of updates to approve automatically as they are downloaded or you can choose to manually approve all updates before they are distributed to clients. I chose default values for the wizard with the exception of the last item, telling it that I would manually approve updates. After the wizard finishes, you select to synchronize immediately or at a later time. Your first synchronization can take some time and consume sig-

nificant network bandwidth, but you do need to synchronize updates from Microsoft before the SCE Update Management feature will work properly.

The SCE Console Interface

The SCE console's interface, which Figure 1 shows, is fairly simple and intuitive as compared with other complex management products. It's laid out in a columnar format featuring various panes for displaying information or choosing actions to perform. Using the View menu, you can customize to some degree which items are displayed together to suit your environment. Figure 1 shows the console with the Computers pane activated and other available items such as Details, Actions, and Navigation enabled. You can resize the columns horizontally and change the height of an item or pane within a column to

suit your preferences. To enter a specific area of SCE, you choose the appropriate selection from the Actions item in the lower left of the console or from the Go menu. The choices are Computers, Monitoring, Updates, Software, Reporting, Authoring, and Administration.

Computers. In the Computers pane, you can view inventory and launch a wide array of diagnostic and maintenance operations on a system. Figure 1 shows some of the possible actions you can perform on the selected managed system.

Monitoring Systems and Network Devices. Microsoft has included some great MOM and Ops Manager functionality to simplify monitoring systems and network devices. I don't have the space here to even scratch the surface of the monitoring functionality available for Windows OSs and Microsoft applications. Monitoring capabilities for most anything you would want to monitor on your desktops plus the majority of mainstream Microsoft server applications are included in SCE. You can author a monitor for a specific service and even develop detailed custom availability monitoring for a Web application. I also tested monitoring for a couple of SNMP-managed devices on my network. For generic network devices, SCE collects uptime information taken from ping contact, but you can import management packs to expose additional capabilities for supported hardware. I imported the Microsoft.SystemCenter.CiscoDevice.Library.mpf file from the SCE 2007 installation media and was presented with additional monitoring information for the Cisco switch on my network.

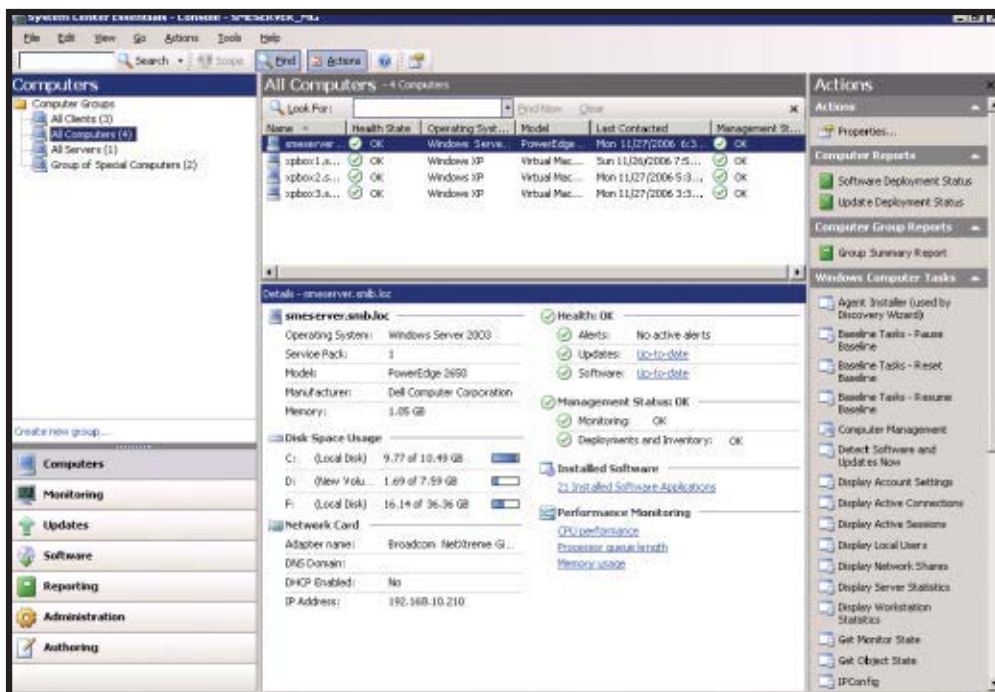


Figure 1: SCE interface

Deploying Software

Updates. One big benefit of SCE is that it has tools for deploying and reporting about software updates from Microsoft. The features in SCE's robust updates management technology make it very easy to synchronize, approve, deploy, and report on updates and patches.

You can also use SCE to deploy updates and patches to third-party software installed in your environment. The distribution of non-Microsoft updates is very similar to the process of distributing software.

Distributing Software.

You can use SCE to deploy software from .exe files, .msi files, and exe-wrapped .msi files. Its capabilities for software deployment, however,

are nowhere near as comprehensive as that of Systems Management Server (SMS) or other enterprise-class software distribution tools.

SCE has no repackaging or scripting capabilities to customize a deployment beyond what is provided by the software manufacturer. On the upside, SCE quickly and easily pushes out standard packages. However, during my testing, the SCE console crashed the first couple of times I tried to deploy Windows Defender. After I cleared the *Include all files and sub-folders in this location* checkbox, I was able to create and deploy packages without a problem.

Reporting. You'll find two user-configurable reports: Availability and Configuration Changes. I presume more


reporting options will be available in the final release. I saw many context-specific reporting options that appeared throughout the interface, but they weren't enabled in the Beta 2 build that I tested.

Authoring and Administration. As I mentioned in the Monitoring section, the Authoring pane is where you can add monitoring for OLE DB data sources, TCP ports, a Web application, or a Windows service to achieve customized monitoring capabilities for an application or service in your environment.

The Administration pane lets you configure settings for how SCE will operate in your environment. These settings include device management, security, notifications, and general operational parameters.

This is also where you go to import and manage management packs.

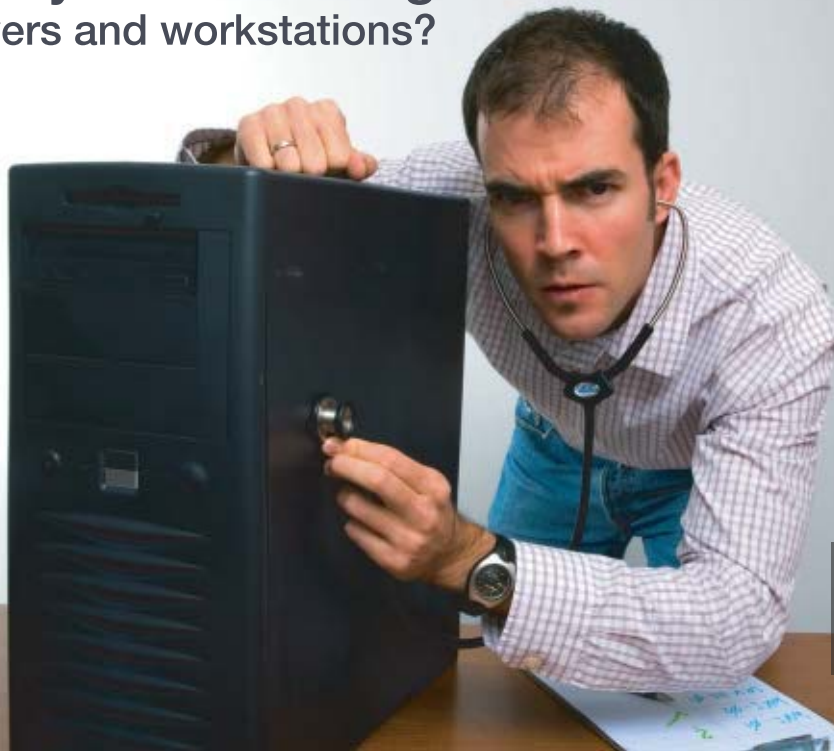
First Impressions: Fix Bugs, Start a Revolution

Overall, I think SCE will catch on for many SMBs. It boasts a wealth of worthwhile features in a concise, easy-to-use interface. Unfortunately, the beta version I tested still had too many bugs to give it an official stamp of approval. For example, the console crashed on me numerous times during testing. I'm sure Microsoft will work diligently to make SCE stable and robust. Then, SCE will be poised to start a small revolution in IT systems management, at least for SMBs. 

—Ed Roth

InstantDoc ID 94762

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Paul's Picks



Summaries of in-depth product reviews on Paul Thurrott's SuperSite for Windows

<http://www.winsupersite.com>

Microsoft Office 2007

PROS: Major UI revamp; functionality that was previously hidden is now easier to find

CONS: Not all applications have been updated to new UI; training costs are unknown

RECOMMENDATION: Microsoft Office 2007 System is a revolutionary upgrade, especially the four applications that have been completely redone with new UIs: Word, Excel, Access, and PowerPoint. Overall, I suspect that the new Office 2007 UI will be of most benefit to inexperienced users and, not coincidentally, those with the most Office experience will face some retraining. The effort will be worthwhile: Office 2007 is the first must-have Office upgrade since Office 95 debuted more than a decade ago.

CONTACT: Microsoft • 800-426-9400 • <http://www.microsoft.com>

FULL REVIEW: http://www.winsupersite.com/reviews/office2007_beta2.asp

Mozilla Firefox 2

PROS: Secure and highly functional Web browser is a viable alternative to Internet Explorer (IE) 7.0

CONS: New features are mostly minor; anti-phishing filter doesn't seem very sophisticated

RECOMMENDATION: Mozilla Firefox 2 is a minor upgrade to an amazing product, but it comes across as somewhat lackluster because previous versions were so revolutionary. This time around, we get a number of small improvements, most of which could have easily been added to Firefox 1.5 via the browser's elegant Extensions system. Don't get me wrong: Firefox 2 is still Firefox, so it's a tremendous product. It's just that the latest version isn't a substantial upgrade and might be less interesting to businesses nervous about the costs of upgrading.

CONTACT: Mozilla Corporation • <http://www.mozilla.com>

FULL REVIEW: <http://www.winsupersite.com/reviews/firefox2.asp>

InstantDoc ID 94980

E-Trail Digital Archive

E-Trail Digital Archive from Lighthouse Global Technologies lets corporations store multiple forms of electronic communication, such as email and instant messages, in a relational database system. E-Trail Digital Archive data can be stored in Microsoft SQL Server, Oracle, MySQL, and other databases; the installation disk provides a copy of MySQL.

Installing the product was more complicated than I expected. The basic setup was fairly straightforward and requested configuration information such as the database in which I wanted to store my archive data. However, the installation runs from a .bat file, a procedure that was not as smooth as I would have liked. I also had to create and populate the database from a command shell instead of through the installation wizard.

E-Trail Digital Archive provides a variety of modules so that corporations can customize the solution to best fit their needs. I installed E-Trail Check Services, which manages the Windows services that E-Trail Digital Archive uses, and the E-Trail Digital Archive PST Importer, which allows for searching and archiving of existing email files such as .pst, .eml, .mbox, and Maildir files. I also installed the E-Trail Digital Archive Outlook Add-In, which integrates with Microsoft Office Outlook, allowing Outlook users to access E-Trail Digital Archive without having to go through the Web-based interface.

Overall, the installation was too segregated and command-line oriented for an enterprise solution. The installation process would be much simpler if Lighthouse Global Technologies were to combine all of these modules into a single installation wizard with modules made available on the basis of the license key.

After installation, I used the E-Trail Digital Archive PST Importer to import email data from a backup PST. The import took a few minutes, then I was able to test the administration Web interface. I generated a new search query from the Run Query page to traverse the archive database. I saved the query, which exported the settings to an XML file, then submitted the query. I was able to view the query progress in the Query Admin section.

The Results page displays completed queries. Clicking the query name reveals the messages that the query found. The returned data can be viewed directly from the interface or downloaded to a file. Overall, the administration Web interface is straightforward and easy to use. However, I thought there were too many instances in which new windows would appear when a selection was made; keeping all the windows inside a common window frame would be more efficient for the user.

E-Trail Digital Archive is built on a Java platform and uses an open-source database, MySQL, for default storage. Although this setup might be appealing to administrators who don't use Microsoft products, the administrative burden of integrating this product into a Microsoft organization might outweigh the benefits of using it. By default, the Apache Tomcat Web server must also be installed with E-Trail Digital Archive. Tomcat works side-by-side with Microsoft IIS, but it adds another Web server to your environment that you must administer. I'm not convinced there is a demand for separate archival products, considering that email clients already have archival capabilities—they might not be as robust, but they will cover most companies' archival needs.

E-Trail Digital Archive is a useful tool for companies that need electronic archival functionality, but the cost is high, starting at \$8,000 for an Enterprise License. I'm not certain the benefits of this product make it cost-effective for most corporations to adopt. Lighthouse Global Technologies addresses cost concerns with E-Trail Digital Archive ASP, which runs as a hosted service. The cost of this product is significantly lower, making it an option for smaller companies looking to archive their electronic communication. For the full-length version of this review, go to <http://www.windowsitpro.com> and enter InstantDoc ID 94885.

Summary

E-Trail Digital Archive

PROS: Easily archives a variety of different electronic communication formats into one source

CONS: Expensive solution; installation is fragmented

RATING: ◆◆◆◆◆

PRICE: Starts at \$8,000

RECOMMENDATION: Useful for large organizations with compliance requirements, but not cost-effective for smaller organizations.

CONTACT: Lighthouse Global Technologies • 800-930-4079 • <http://www.lighthousegt.com> • info@lighthousegt.com

—Michael D. Cassens

InstantDoc ID 94885

EventSentry 2.72

NETIKUS.NET's EventSentry 2.72 is a network-monitoring tool that collects events on monitored computers, filters them according to customizable preferences, and forwards relevant items to the administrator. In addition to collecting event-log data from Windows servers and workstations, EventSentry agents can also monitor disk and processor performance, printing, logons, service state, and installed applications. A Windows event log stores all sorts of information useful to the administrator; it also contains many irrelevant items. EventSentry endeavors to deliver the useful items directly to the administrator at his or her desk. In times of trouble, this information can speed the diagnosis of problems.

An EventSentry agent runs as a service on monitored computers, sending collected data in real time to the management console. EventSentry can use MySQL, Microsoft SQL Server 2005, or SQL Server 2000 databases. Although I found

joined computers to groups by using the Active Directory (AD) linking feature. I was then able to deploy the agent automatically from the management console without physically visiting the monitored computers. The management console pushes alerting, health monitoring, and tracking packages to the agents. Depending on which packages are associated with a monitored computer, the computer's agent performs tasks such as polling for disk space information or sending an email notification if a particular event occurs. EventSentry provides some pre-configured packages suitable for event tracking of common applications such as Microsoft Exchange Server and antivirus software. If critical services are halted, the administrator receives an email notification, page, or network message.

EventSentry also performs basic network monitoring, allowing the administrator to check node connectivity via Internet Control Message Pro-

EventSentry management application to read the alert: Microsoft ISA Server had attempted to take over master browser status of the domain. By following the link in the alert to EventSentry's online knowledge base, MyEventLog.com, I determined that ISA Server wasn't properly filtering incoming AD messages. I like this feature, but I wish the link to MyEventLog.com were in the email message so I wouldn't have to open the EventSentry application.

The application documentation isn't particularly strong. The EventSentry Quickstart Guide, available online, doesn't include step-by-step installation and configuration instructions, which is what I expect from such a document. There are typos and grammatical errors on the Web page and within the Help file, which weakens my confidence in the information.

Although I found EventSentry to be a good product overall, I had a few problems

If critical services are halted, the administrator receives an email notification, page, or network message.

the SQL Server option easier to configure, I appreciated having the choice. The installation and configuration of EventSentry was astoundingly easy. I completed the setup and did some preliminary filtering of unwanted information in just half an hour.

You manage EventSentry through agents, groups, and packages. From the EventSentry management console, I

protocol (ICMP) pings or custom TCP port pings. It is also capable of capturing syslog events from UNIX, Cisco, and other syslog-capable devices. With additional hardware available from NETIKUS.NET, EventSentry can monitor a server's physical environment for temperature, humidity, and smoke.

EventSentry notified me by email of a problem in my test network. I opened up the

with it. Some parts of the interface require more clicks than I thought should be necessary; it isn't always clear whether a button is depressed or not, such as when I was configuring the date and time settings for when notifications should be sent; and the reporting Web page doesn't auto refresh. These are minor issues to which a user could adapt.

However, I would not rec-

Summary

EventSentry 2.72

PROS: Simple to install

CONS: Poor documentation; only one management console instance can run at a time

RATING: 

PRICE: From one host for \$69 to 150 hosts for \$23.99 each; contact vendor for pricing for more than 150 hosts

RECOMMENDATION: Offers affordable and reliable monitoring to small organizations. Not suitable for large IT departments needing multiple-user capabilities.

CONTACT: NETIKUS.NET • 877-638-4587 • 312-624-7698 • <http://www.netikus.net>

ommend EventSentry to large organizations because of a fundamental architectural problem: The management console can be run only locally and can run only a single instance at a time. As a result, multiple users can't access the management console simultaneously. (By comparison, Microsoft Operations Manager—MOM—2005 has a complex architecture designed for delegation of responsibility to varying teams.) With EventSentry, a single computer is the focus of monitoring.

I was pleased with EventSentry's easy setup and configuration and found the monitoring capabilities adequate for the needs of smaller and less complex organizations. Large IT organizations should give EventSentry a pass and go straight to MOM. However, smaller shops with the need to track some mission-critical services and computers will be pleased with EventSentry's ease of use and effectiveness.

—Joel B. Barker

InstantDoc ID 94824

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December IT Pro of the Month



Steven Fellwock

Current Position

Senior Server Administrator,
Des Moines, Iowa

A WINNING SOLUTION

Active Directory Login Services

To assist in a migration to a Windows network, Steven created an SQL database to hold group memberships and drive mappings from login scripts. An HTML front end lets users request drive mappings, exports the SQL data to an XML file, and replicates the data to all SYSVOLs.

February IT Pro of the Month



**Stefan
Suesser**

Current Position

IT System Analyst,
Kerpen, Germany

A WINNING SOLUTION

Systems Management Server Migration Tool

Thanks to the VBScript migration tool Stefan wrote, his company migrated its SMS 2.0 system into a new SMS 2003 installation automatically. The solution allowed the migration to be thoroughly and repeatedly tested in the lab and migrated live systems in minutes without error.

January IT Pro of the Month



Ersin Durna

Current Position

Systems Architect,
Istanbul, Turkey

A WINNING SOLUTION

Scripted Business Application

To meet a customer's request, Ersin's VBScript solution uses FTP to automatically retrieve a customer's payment file, submit the file to the banking system, then make the processed output file available to the customer.

Learn more about Steven, Ersin,
and Stefan's winning solutions at
**[www.windowsitpro.com
/itpromonth](http://www.windowsitpro.com/itpromonth)**

Light Database Tools

These solutions make it easy to enter the database realm

Windows IT administrators are typically IT generalists, and as such are responsible for managing a variety of systems and applications. With this responsibility can come the duty of purchasing or maintaining a database product. The good news is that a number of entry-level lightweight database products exist, and they really fill the bill for developers who are learning their way around the database world and Windows administrators who must make product decisions for a small business or a department in a larger organization. Lightweight database products aren't intended for large-scale environments, but they can be great solutions for smaller-scale implementations and one-person operations, and can also meet database-training needs. All the products in this Buyer's Guide, from open-source solutions to Microsoft and Oracle products, can be easily upgraded to the full-featured product line.

Version Variety

Although the number of light database products on the market isn't large, some vendors offer more than one version. For example, both Microsoft SQL Server 2005 Compact Edition and Oracle Database Lite 10g are database products that let you build, test, deploy, and manage applications for mobile devices. These products allow offline data management capabilities to let you access your database and manipulate data while offline. (If the name SQL Server 2005 Compact Edition isn't familiar, that might be because the product was known as SQL Server 2005 Everywhere Edition during its development phase.)

No-Cost Solutions

Microsoft, Oracle, and IBM offer free light database products that are great starter databases to develop, deploy, and distribute. These products include SQL Server 2005 Express Edition, the light version of SQL Server 2005; Database 10g Express Edition, the light version of Database 10g Release 2; and IBM DB2 Express-C, the light version of IBM DB2. There are appreciable differences between these three products. For example, DB2 Express-C, unlike the Oracle and Microsoft solutions, places no restrictions on database size. In addition, there are no restrictions to the number of instances or databases per server, and no restriction on the number of users with DB2 Express-C. If supporting user data types is important, you'll need to consider SQL Server Express—Database 10g Express Edition doesn't support user data types.

When evaluating the free solutions, look at their built-in development tools—the functions and capabilities for each product differ. Data protection is always a concern, so evaluate each solution's data protection features. SQL Server Express, for example, has three levels of code-access security: Safe, External Access, and Unsafe. All three of the free solutions are available for download on the vendors' Web sites.

Open Source

Two open-source light database solutions are well accepted and in use in many organizations. MySQL is used by Yahoo!, NASA, and The Associated Press. PostgreSQL is used by a number of large universities, including the University of California at Berkeley and the University of Alabama, Birmingham, as well as in organizations such as Cisco and Sun Microsystems. Open-source database systems number reduced licensing costs and lower hardware expenditures among their benefits.

Windows or Linux?

The OSs that are installed in your environment will affect your choice of light database solution. If you're a Windows shop, you can choose among all of the solutions listed in the product table on page XX. If you support Windows and Linux or only Linux, you'll need to look at solutions other than SQL Server Express or SQL Server 2005 Compact Edition. The open-source solutions PostgreSQL and MySQL support the greatest number of OSs. If you're a heterogeneous shop, consider those products.

Database Features

A variety of database functions will come into play as you evaluate solutions. If you want a product that supports user-defined functions, triggers, user-data types, or stored procedures, use the product table to identify which of those functions each product supports. Although most vendors support database functions, a few do not. Another important factor is database maximum size. The proprietary solutions, such as SQL Server Express, SQL Server 2005 Compact Edition, Database 10g Express Edition, and Database Lite 10g, let you create databases as large as 4GB. However, DB2 Express-C, PostgreSQL, and MySQL impose no limits on database size.

InstantDoc ID 95091



Blake Eno

(beno@windowsitpro.com) is a product editor for *Windows IT Pro* and *SQL Server Magazine*.

EDITOR'S NOTE

The Buyer's Guide presents vendor-submitted information. To find out about future Buyer's Guide topics or to learn how to include your product in an upcoming Buyer's Guide, go to <http://www.windowsitpro.com/buyersguide>.

Company	Product	Licensing	Maximum Size of Database	Limitations to RAM, Active Processes, and Instances	Uses the Same Code as the Base Product Family	Built-in Development Tools
IBM 800-426-4968 http://www.ibm.com	DB2 Express-C	Free	Unlimited	4GB of RAM per 2 CPUs; no limitations on processes or instances	Yes	Yes
	DB2 Express 9	\$4,874 per CPU or \$165 per user (5-user minimum)	Unlimited	16GB of RAM per 4 CPUs; no limitations on processes or instances	Yes	Yes
Microsoft 800-642-7676 http://www.microsoft.com	SQL Server 2005 Express Edition	Free to obtain and use; royalty-free redistribution (registration required)	4GB	1GB of RAM	Yes	Yes; users can use SQL Server Management Studio to program a SQL Server Express Edition database. Alternatively, developers can use Microsoft Visual Studio 2005 and the .NET Framework to build custom functions.
	SQL Server 2005 Compact Edition	Free to download, develop, and deploy applications; free for third-party redistribution	4GB	Unlimited	Yes	Yes; users can use SQL Server Management Studio to program a SQL Server Compact Edition database. Alternatively, developers can use Microsoft Visual Studio 2005 and the .NET Framework to build custom functions.
MySQL AB 208-514-4780 866-697-7522 http://www.mysql.com	MySQL 5.0 - includes both MySQL Enterprise and MySQL Community Server Editions	Open Source GPL and commercial licenses	Unlimited	None	Yes	Yes
Oracle 800-223-1711 http://www.oracle.com	Oracle Database Lite 10g	Per CPU	4GB	None	No	Yes
	Oracle Database 10g Express Edition	Free	4GB	Single instance only on any server; executes only on one processor per server, but may be installed on a multiple-CPU server; will use only up to 1GB of RAM of available memory	Yes	Includes Application Express, a Web-based development and deployment tool; includes complete integrated set of Oracle Database programming interfaces, including SQL, PL/SQL, Java, C, PHP, Microsoft .NET, Oracle Application Express, C++, ODBC, OLE DB.
PostgreSQL Global Development Group http://www.postgresql.org	PostgreSQL 8.2	BSD license	Unlimited	Unlimited	Yes	Development libraries and documentation are included



The **Essential** March 2007 Guide^{to}

WINDOWS SERVER 2003 R2

DATACENTER EDITION

by David Chernicoff

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Despite the rapid advances in microprocessor technology and performance, there are always application and business environments that need more processing power and capability. At the other end of the spectrum there are small server workloads that can be virtualized and consolidated.

For both these environments, Microsoft provides the Windows Server 2003 R2 Datacenter Edition. Designed for the enterprise-computing environment, Datacenter Edition delivers on the enterprise-class reliability, scalability, and large-scale virtualization needs of the Windows Server corporate user. Historically, Datacenter Edition customers have been looking for a platform for their large-scale applications, but now they are also lowering their license costs by using Datacenter Edition for large-scale virtualization on small servers. With Datacenter Edition's licensing changes that took effect October 1, 2006, the potential of unlimited virtualization rights gets added to the mix and Datacenter Edition is now available through Volume Licensing. Simply put, Datacenter Edition is the most powerful and flexible version of Windows Server.

Consider the issue of scalability; what was once a highly complex and difficult to deploy symmetric multi-processing environment is on the verge of becoming commonplace. As databases grow and Line of Business applications require capacity for large transaction volume and simultaneous users, implementing and deploying 8-way or larger servers is no longer the very limited and specialized niche it once was.

IT departments are turning to Datacenter on large servers to scale-up the Windows-based line of business applications and databases to fit growing business needs, as well as migrate workloads from mainframes and Unix. But Datacenter Edition's advantages aren't limited to huge servers designed to replace mainframes and large Unix installations. Datacenter Edition's unlimited virtualization capability,

combine with the per-processor (not per-core like many other software companies) licensing model makes it the perfect operating system to take advantage of the power of current and future multi-core, multiprocessor server hardware. The introduction of quad-core processors from AMD and Intel has made large-scale virtualization on small servers with Datacenter Edition very cost-effective.

Datacenter Edition has Lowest TCO

With the Standard and Enterprise Editions of Windows Server 2003 R2, users are limited to 4- and 8-processor support, respectively. With Datacenter Edition, you get the ability to scale to as many as 64 processors (in the 64-bit version of the software) or 32 processors (with 32-bit software). With Service Pack 2, Datacenter Edition now supports up to 2 TB of memory (in 64 bit versions; 32-bit is still limited to 128 GB of RAM). Datacenter Edition is available for x86 32-bit architectures and 64-bit x64 and IA64 (Itanium) architectures. With the unlimited virtualization use rights of Datacenter Edition, and Datacenter Edition is the most cost-effective edition of Windows Server when the server is running more than 4 virtualized instances of Windows Server per processor.

The virtualization capabilities become a very important part of the Total Cost of Ownership equation. With the Standard Edition of Windows Server, a separate license is required for the host and each virtualized instance, with Enterprise Edition, the license allows for Enterprise Edition to be deployed as the host and up to four virtualized instances of either Standard or Enterprise Edition. But with the Datacenter Edition license you get the flexibility to deploy an unlimited number of virtualized instances of Standard, Enterprise, or Datacenter Editions with Datacenter Edition as the host operating system. These rights apply to all virtualization platforms.

Datacenter Edition also has all of the reliability and availability features that are available

Figure 1: Licensing Cost Breakdown of Virtualization—Example scenarios

Number of Processors (single server)	Number of Virtual Machines	Standard Edition Licenses Needed and Cost	Enterprise Edition Licenses Needed and Cost	Datacenter Edition Licenses Needed and Cost
1	1	1 = \$719	1 = \$2,334	1 = \$2,381
1	4	4 = \$2,876	1 = \$2,334	1 = \$2,381
1	5	5 = \$3,595	2 = \$4,668	1 = \$2,381
1	12	12 = \$8,628	3 = \$7,002	1 = \$2,381
2	16	16 = \$11,504	4 = \$9,336	2 = \$4,762
4	32	32 = \$23,008	8 = \$18,672	4 = \$9,524
8	64	N/A	16 = \$37,344	8 = \$19,048
16	128	N/A	N/A	16 = \$38,096

in Enterprise Edition, plus the option of the Datacenter High Availability Program for solutions that need the highest levels of availability and reliability. The High Availability Program combines the Datacenter OS, high-quality servers configurations that adhere to very stringent requirements, 100% signed drivers, best practices for configuration management and change control, and end-to-end support from the OEM with escalations to Microsoft for faster problem resolution. Due to the configuration, test and support requirements, servers with the Datacenter High Availability Program are only available from qualified OEMs. Complete details on the program can be found at <http://www.microsoft.com/windowsserver2003/datacenter/dcprogram.msp>

Datacenter Edition is now available directly from Microsoft and resellers on Volume License agreements and can be installed on any 2-way or larger server capable of running Windows Server. It is no longer an OEM only product. OEMs can now sell Datacenter Edition on any server with as few as two processors and participation in the High Availability Program is now optional. With the unlimited virtualization rights now included in the Datacenter Edition license, users of Enterprise Edition

(or even Standard Edition) with virtualization requirements will find that upgrading to Datacenter Edition will often make a great deal of financial sense.

Cost breakdown

Now that Datacenter Edition is easy to purchase through Volume Licensing and from OEMs on any 2-way and 4-way server that can run Windows Servers, a breakdown of the license costs will demonstrate that Datacenter Edition is most cost-effective when running more than 4 virtualized instances of Windows Server per processor.

This is due to the difference in the licensing model and pricing. Standard and Enterprise Edition are server-wide licenses, while Datacenter Edition is licensed on a per-processor basis. However, once you begin to factor in the cost of licenses for virtualized instances of the server software, the cost of Datacenter Edition becomes less expensive than

**Datacenter Edition is
most cost-effective
when running more than
4 virtualized instances
of Windows Server
per processor.**

other editions of Windows Server. As the number of virtualization instances continues to increase, Datacenter Edition becomes significantly less expensive to license, as shown in Figure 1.

In higher-density environments (VMs per processor), the price deltas become even more significant. Using the model of a customer with 10 2-way quad-core servers (16 licensed processors) running only 16 VMs per servers (only two VMs per processor core; a fairly light load) you get the following costs under the Open agreement in Volume Licensing:

- Standard Edition would require 160 licenses: \$115,040 (1 license per VM)
- Enterprise Edition would require 40 licenses: \$93,360 (1 license per 4 VMs)
- Datacenter Edition would require 20 licenses: \$47,620 (1 license per processor)

Customers with Microsoft Software Assurance coverage can step up their Standard and Enterprise Edition server licenses to Datacenter Edition processor licenses, so it is possible to preserve the existing investment. To do your own calculations, based on your own needs for servers,

both physical and virtualized, you can make use of the Windows Server Virtualization Calculator, which can be found at <http://www.microsoft.com/windowsserver2003/howtobuy/licensing/calculator.mspx>.

Saving Space, Electricity and License Costs with Server Consolidation

With the cost of physical space, management, powering and cooling servers continuing to rise with the number of servers, many companies are consolidating the number of physical servers through virtualization. Server and application consolidation is the most common consideration. A smaller number of physical servers means that you will reduce the TCO for your server farms. Even if you maintain the same number of server images via virtualization, you no longer have to deal with the issues surrounding physical server hardware (power, rack space, spare parts, maintenance, management) for as large a number of servers. Server consolidation may also mean that you are using a smaller number of larger and more powerful servers to handle the tasks that were previously distributed throughout the enterprise.

For example, the virtualization aspect is also incredibly valuable if you are running your own Web farms. A single server can replace dozens of individual servers, making it possible to reduce the costs of maintaining highly available Web



infrastructures by a considerable margin, as the expense of maintaining only one or two servers, versus two or three dozen, especially in a high-reliability environment makes the initial purchase cost of Datacenter Edition seem almost trivial.

Clearly there will also be large-scale line-of-business applications and single instance applications such as databases and data warehousing that simply need the capacity of large multiprocessor hardware. In these environments the high-availability and reliability features of Datacenter Edition server, as well as the support for large multiprocessor hardware is essential.

Handling migrations

Big 8-way and larger servers are also exceptionally well suited for the migration from Unix and mainframe workloads. Some major Unix-based applications, such as SAP can simply be migrated to their Windows server versions, and is especially appealing if the majority of the corporate computing server environment is already Windows-based, simplifying the management of the formerly Unix-hosted applications. Windows Server has migration tools, such as Sub-systems for Unix-based Applications and interoperability features to ease the transition and support mixed environments. In the case of scalability, you can grow applications and databases on a large Datacenter Edition server beyond what was possible with Standard or Enterprise Edition as your business needs grow.

It is also important to consider the effect of large-scale virtualization on the management and maintenance costs associated with running large server environments. With virtualization, you can take advantage of Datacenter Edition's unlimited virtualization rights on 2-way and 4-way servers.

The maintenance advantage of having fewer physical servers is clear; the fewer pieces of hardware that need maintenance contracts and IT support, the smaller the expense. The advantages of consolidated server management are equally important. The requirements to manage a smaller number of physical servers, and simplified management of the servers that have been virtualized, along with the ability to create virtualized server images that

contain an entire server environment and can be easily backed-up and restored reduces the workload on the server IT staff.



With the new Volume Licensing availability and virtualization licensing Windows Server 2003 R2 DataCenter Edition becomes a much more practical solution for a larger number of Windows Server environments. Datacenter is the most scalable and flexible version of Windows Server 2003, able to grow with a business environment. Unlimited virtualization means that there is no more cost effective edition of Windows Server than Datacenter for any environment planning on making significant use of virtualized servers. And the cost advantages in long-term TCO are significant, when compared to your existing server and application support costs in a non-virtualized environment.

Visit www.microsoft.com/windowsserver2003/datacenter/dcvalue.mspx for more information

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No	Yes	Yes	Limited	Replication target only	Yes	Yes	Yes	Yes	Yes	Windows, Linux
No	Yes	Yes	Yes	All	Yes	Yes	Yes	Yes	Yes	Windows, Linux
Yes	Yes	Secure by Default settings; finely tuned administration rights; three levels of code access security, including Safe, External Access (verifiable), and Unsafe; support for Windows authentication; access to stored procedures as an abstraction layer	Transactional replication, merge replication	Transactional replication, merge replication	Yes	Yes	Yes	Yes	Yes	Windows Vista/ XP/ 2000
No	Yes	128-bit encryption; password protection	Merge replication	Merge replication, Remote Data Access (RDA)	No	No	No	No	Yes	Windows Vista/ XP/ 2000
No; supports third-party tools	Yes	Yes	Yes	Asynchronous and synchronous	Yes	Yes	No	Yes	Yes	Windows, Linux, Macintosh, HP-UX, IBM AIX, FreeBSD, SCO OpenServer
No	Yes	Yes	Publish/subscribe synchronization	Yes	Yes	Yes	No	Yes	Yes	Win32, Win CE/Mobile 5/ Symbian 7,8, Linux
Yes	Yes	Yes	As read-only and updatable materialized view site only	Yes	Yes	Yes	No	Yes	Yes	32-bit Windows and Linux
No; supports third-party tools	Yes	Yes	With third-party tools	N/A	Yes	Yes	Yes	Yes	No	Windows XP/2003/2000, Linux, and most UNIX variants

System Center Puts DSI into Practice

by Karen Forster

Nobody decides to pursue a career in IT because they find systems management fascinating. That's what a Microsoft Systems Management Server (SMS) MVP recently told me. And yet, IT professionals' highest priority, according to *Windows IT Pro's* 2006 Industry Trends survey, is "managing IT infrastructure," and their biggest pain point is "limited budgets and expanding responsibilities." Systems management may not be sexy, but it nevertheless consumes a huge amount of IT energy and effort—not to mention 70 percent of IT budgets.

And Microsoft hasn't failed to note that all the work of maintaining a functioning infrastructure not only detracts from IT's ability to innovate and deploy new technologies but also presents an opportunity for competitors to lure IT away from Windows. The company is sharply focused on the fact that its competitive advantage hinges on continuously simplifying and unifying the management experience throughout the Windows environment (i.e., Microsoft OSs and applications such as SQL Server, Exchange Server, IIS, and Office). The Dynamic Systems Initiative (DSI) is Microsoft's companywide strategy to attack the management problem end to end, from application development to IT to end users. DSI aims to unite IT and corporate developers in creating operationally aware applications that capture IT knowledge and incorporate health models that facilitate troubleshooting and maintenance.

A year ago, I talked with Microsoft Corporate Vice President Kirill Tatarinov about DSI and his Windows Enterprise Management Division's (WEMD's) System Center products,

which were being developed with the vision of bringing DSI to life by enabling self-managing dynamic systems ("Radically Simplify IT," April 2006, InstantDoc ID 49503.) This year, as the latest version of System Center products begin to reach the market, I again spoke with Tatarinov, as well as System Center General Manager of Marketing Larry Orecklin, to discuss the products and how they address your priorities and pain points.

DSI Progress

Forster: *What would you say are the two most important DSI developments in the past year?*

Tatarinov: We worked closely with the industry to take their feedback and fine-tune the strategy and initiative. A couple things happened: One is standards-related. DSI revolves around the very important concept of applications that are "designed for operations." But we have a robust hardware partner ecosystem, including networking vendors, storage vendors, and ISVs. Unless we have a standard that enables people to define their systems using a language that all the partners can understand, we won't be able to fulfill the "designed for operations" dream. One of the biggest realizations we had about DSI is that the language for expressing system constraints and the meta-model needs to be standard. That was the driver for turning our proprietary SDM [System Definition Model] into the published specification called SML [Service Modeling Language].

Orecklin: SML is how you describe an IT

service, the components in that service, and the relationships between those. Customers' environments are increasingly heterogeneous. When we thought about how our SDM model compares with other initiatives in the industry, we worked with more than ten industry leaders to form the SML Working Group, which has SDM at its core. Since the initial announcement, many more are looking to join.

Tatarinov: IBM, Cisco, EMC, HP, and others are helping take the original specification to the next level, and in the next three to four months, hopefully, make it the industry standard.

Orecklin: There's also an industry initiative called the Configuration Management Database [CMDB] Federation Consortium. CMDB helps define and catalog all [IT] assets and components and the state of those assets. We joined that group and are working with them to adopt SML as the core language and modeling infrastructure.

From a designed-for-operations perspective, standards is the key technical movement. All our products are leveraging this common model infrastructure as a way to describe and capture the knowledge that exists all the way from the developer through to the end users. It's incorporated in Visual Studio [VS]. It's a core part of the System Center portfolio.

Forster: *You mentioned two key results that came from industry input. The first was the standards you just discussed. What was the second?*

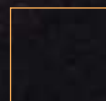
The beginnings of “operational awareness” and end-to-end manageability

Tatarinov: The second is fine-tuning DSI by considering a new persona: the business architect. This concept originates with feedback we got from industry analysts. This persona thinks about the connection of business and IT. So now DSI addresses the developer, IT professional, and business architect to provide the CIO an enterprise governance view.

How do you define the ecosystem and the collection of tools that will plug in together and deliver complete umbrella-style management so that the CIO would be able to understand and see a concrete set of reports that span project management, asset allocation, governance and compliance, traditional IT infrastructure management, and development aspects all coming together? The business architect persona fulfills the CIO's dream in that scenario.

Forster: *What's the purpose of these personas in relation to DSI?*

Tatarinov: DSI works by connecting several products that fulfill an individual persona's needs. The VS brand is for developers and architects. System Center is for IT managers. Microsoft Project and Microsoft Office are for business architects. The



connection happens through standard interfaces, standard schemas and models, and point-to-point connectors that are being built.

We also define very crisp scenarios for how those connections work. A simple scenario: I'm the developer. I built the system. The system automatically gets provisioned and goes into operations. When operations sees an alert, that alert is automatically mapped back to the developer environment and gets logged as a bug for the developer who built this system. Then the bug can be corrected, and the fix automatically finds its way back into production.

Forster: *How does DSI differentiate System Center products from third-party products?*

Tatarinov: All the System Center products share DSI-based characteristics: First is ease of use (and I put ease of deployment in the same category). Management products have been hard to use and learn and require significant consulting engagements before they can be deployed and scaled. This is something we've tried to reduce.

Second, System Center products are driven by knowledge that we assembled from the industry and from focusing on our customers. For example, we worked to understand the backup and restore needs of our SQL Server, Exchange Server, and SharePoint customer base. We also spent time with Exchange customers to understand what they need to proactively correct errors with as little downtime and manual intervention as necessary. The knowledge we gained has manifested in the System Center products and is a critical attribute and differentiator for our products.

Third is scalability. We scale up to the largest enterprises out there and down to the smallest organizations. Scalability up and down is an important differentiator.

Operations Manager

Forster: *System Center Operations Manager 2007 (Ops Manager), the successor to Microsoft Operations Manager (MOM), is the first product to be renamed under the new brand. How does it incorporate DSI?*

Tatarinov: With System Center Operations Manager coming out in April, customers can take advantage of the model-based management approach and apply it to management of services. You will be able to define the model of a service and manage that service the same

way end users see that service.

Orecklin: Historically, the industry focused on monitoring things—the server, the application. But it's crucial to look end-to-end at how to deploy, manage, and monitor a service. Take messaging, for example: I care about my Exchange server, the network, my SAN, and AD. I need to ensure that each component is being managed and monitored but also that they all roll up to provide an end-to-end view of the entire messaging service. To do service-level monitoring, [Ops Manager has] new views, templates, and wizards to easily define and create a template out of the box. That includes management packs for all Microsoft components, as well as for our partners' on hardware, network, storage, and so on.

System Center Configuration Manager's first focus is radically simplifying OS deployment.

Next, you can capture knowledge about the desired state and health of an application and easily monitor and manage that over time. Inline tasks are right in the UI when things go wrong, and all the knowledge base associated with that application is right there. We've also extended the concept of knowledge down to the client. When errors occur, we can capture knowledge about an application, OS, or hardware from clients. You can view client information at the enterprise level or at the group level and link to the Microsoft Knowledge Base. You don't have to wait for a user to call about a problem on a machine.

The least intrusive level of client management is agentless exception monitoring. The applications surface up their events so the customer can monitor and report trends. We also have client management packs for Windows Vista and Office 2007 so we can actively monitor and manage business-critical clients.

Configuration Manager

Forster: *System Center Configuration Manager 2007 (SCCM), the next release, is currently in private beta and goes to public beta in early Q2 of 2007. RTM is set for summer or early autumn*

of 2007. How does SCCM fit in the DSI picture?

Tatarinov: Customers get the ability to use SCCM as their definition and enforcement mechanism to apply a model-based approach to defining the desired state of their environment and making sure that environment stays consistent with their desire.

Orecklin: Desired-configuration management (DCM) is where the notion of knowledge and models comes into play. You can use modeling to define the desired state of a client and an application and then monitor that over time to identify drift from the desired state. From a security and compliance perspective you need to monitor and manage drift and either automatically update or take an action.

Obviously, this is a big year with Vista, Office, and Longhorn Server coming out, and companies are looking for help. SCCM's first focus is radically simplifying OS deployment. In the past, this has been a complex and manually intensive process. We provide a single integrated tool for each OS image "instance." For example, SCCM provides an integrated view of desktops, laptops, and servers. We found that many customers are maintaining dozens or hundreds of OS images because of varying hardware driver sets. SCCM provides a Driver Library so that IT can decouple the drivers from the core image, significantly reducing the number of OS images necessary to maintain their user base. In addition, preparing an OS image for deployment revolves around dozens of individual tasks such as configuring security settings, joining domains, and so on. So we developed a new feature called the Task Sequencer in which dozens of tasks are available and an administrator can drag and drop tasks in the correct sequence for each user set. Finally, customers asked us to improve ease of use and reduce complexity. For example, deploying a patch in an enterprise with SMS could take as many as 18 screens. With SCCM, that's down to as few as six mouse clicks.

System Center Essentials

Forster: *Readers in small and medium-sized organizations tell me they are excited about System Center Essentials (SCE), which is slated to ship in the first quarter of 2007. (Ed Roth puts SCE through its paces in "System Center Essentials 2007 Beta 2," page 23.)*

Tatarinov: SCE plays into a market where cus-

tomers have fewer than 500 PCs. This market segment has been underserved historically. People are starving for a solution. We talked about different personas. This person has to deal with every aspect of IT, and we want to enable that person to do everything with a simple, easy-to-use interface. SCE will enable that person to easily configure devices—be it servers or desktops—and distribute software to those devices. SCE also lets this person monitor network, servers, and devices in a very simple way.

Virtual Machine Manager

Forster: *Virtualization is the hottest technology in our industry, and competition is already out there. System Center Virtual Machine Manager (VMM) is in beta, scheduled for launch in Q3 of 2007. What's your competitive angle on managing a virtual environment?*

Tatarinov: We think you can't look at virtualization in isolation. Our approach to virtualization management is to bring it under the context of the infrastructure and enterprise management overall. System Center Virtual Machine Manager is the product that will extend Operations Manager and Configuration Manager into the domain of virtual machines and enable those products to provide seamless management of both the physical and virtual environment. This is the core differentiator for Microsoft compared to other players in that space.

Forster: *What are the challenges in managing a virtual environment?*

Tatarinov: It's a whole lot more dynamic compared to physical machines. Things like rapid discovery and capacity-based and on-demand provisioning become much more important than in the physical world and are done on a much more frequent basis.

Forster: *How do you differentiate VMM from competitors such as VMWare?*

Tatarinov: We're combining the management of physical and virtual environments, and we enable people to use the same interfaces to manage their entire application, entire service, whether it's implemented on a physical or virtual machine.

In Longhorn Server, with Windows hypervisor, we're now thinking of virtualization

as a component, or feature, of Windows as opposed to being something standalone. A big differentiator that customers recognize is that Windows has virtualization as a feature.

Data Protection Manager

Forster: *System Center Data Protection Manager (DPM) has been a successful disk-based backup solution for file and print servers. The demand for DPM to also back up SQL Server and Exchange has been high since DPM launched.*

Tatarinov: DPM V2 will support SQL Server, Exchange, and SharePoint. DPM V2 also provides archiving capabilities and works directly with tape drives. We're enhancing and simplifying the UI, which is already much simpler than what the rest of the industry could offer. It's going to be a killer product.

Service Desk and VSTS

Forster: *The new System Center product code named "Service Desk" is currently in private beta, with a public beta slated for April 2007 and RTM for a year later. What is Service Desk?*

Tatarinov: The product provides a platform for end-to-end IT management and a framework to build solutions on top of that. Service Desk includes a workflow engine that will provide the basis for how we automate IT processes, and the implementation of the SML-based CMDB, which will be the foundation of our asset- and change-management capability. Following DSI's principle of capturing knowledge in models, Service Desk will include workflow templates for key customer scenarios. Service Desk will also deliver unprecedented integration with both Operations Manager and SCCM.

A very important platform aspect of Service Desk is a self-service portal. We're focused on enabling end users to do as many things as possible. So IT pros can define a policy. Then that policy is applied to the organization, and the end user is empowered to automatically do things that the policy allows.

Forster: *Service Desk seems to bring "designed for operations" full circle by providing a means to feed production and user data back into the development process through VSTS (Visual Studio Team System). (Sam Guckenheimer, a group product planner in the VSTS group, explains the*

role of VSTS in DSI in the Web-exclusive sidebar "System Center 'Service Desk' and VSTS: Where IT and Dev Meet," InstantDoc ID 95147)

Tatarinov: "Designed for operations" is a prime DSI concept—DSI being the connector of the entire system life cycle. Manageability and operational disciplines need to come early in the cycle, and everybody who builds the system needs to think about manageability. They need to be creating health, configuration, and task models early in the design phase rather than employing the traditional approach, which was: Build the system first, it goes into production as a black box, and then someone else—like a traditional systems management vendor—comes in and pokes at that black box to find out what's going on. You can't manage the unmanageable. If a system is created as an unmanageable black box, it's going to remain a black box and you'll just spend more money trying to manage it. "Designed for operations" means there are no black boxes. The system is created to be easily put into production and easily managed.

Forster: *Integration of IT knowledge is a core tenet of DSI, so how does Service Desk incorporate that knowledge?*

Tatarinov: The knowledge we assembled and put into the market in the form of Solution Accelerators will be encoded in Service Desk. Another important aspect: Every serious IT organization has little books in which its knowledge is written. Those organizations will be able to encode that knowledge and make it residual. In Service Desk, you'll be able to define best practices and policies for applying change or managing assets and for levels of approval, and it's all going to live in the product.

Doing the Right Thing

System Center isn't going to make systems management sexy, but the vision of enabling self-managing dynamic systems is going to help IT deal with its highest priorities and greatest pain points. By focusing on simplifying IT, Microsoft is protecting and conserving its greatest asset—its customers.



InstantDoc ID 94969

Karen Forster

(karen@windowsitpro.com) is group editorial director of *Windows IT Pro* and *SQL Server Magazine* and former director of Windows Server User Assistance at Microsoft.

Exchange 2007 TRANSFORMS MESSAGE ROUTING

Changes in the routing process lead to more efficient message transport

Microsoft Exchange Server 2007 introduces a lot of changes to the Exchange world. Most of these changes have been well-publicized, such as the move to 64-bit hardware and the introduction of the Exchange Management Shell—based on Windows PowerShell—as a new scripting environment. However, there are other changes that have received less attention because they don't apply universally to every Exchange organization. One of these changes is the shift in how Exchange 2007 uses routing groups: In brief, it doesn't! Let's look at the routing changes in Exchange 2007 and see what you need to do to prepare for

Exchange 2007 deployment in environments with multiple routing groups.

Out of Site

Since the release of Windows 2000, Microsoft has provided a set of tools for working with segmented networks: the Active Directory (AD) site, site link, and site link bridge objects. These objects provide a way to add knowledge of the underlying network to an AD topology. Windows uses this information to perform a variety of tasks. For example, when a computer boots, it can issue DNS queries to find out which domain controllers (DCs) are in the same site because these should be more readily available and faster than DCs in nonlocal sites.

You should think of a site as a collection of connected IP subnets. Sites aren't the same as domains; a domain can span multiple sites, and a site can contain multiple domains. However, the design of the Windows site model means that every computer (whether server or client) must be a member of exactly one site. When you set up AD in a new forest, you get a new site named Default-First-Site, and your DCs all go into it unless you manually create new sites. As you create new sites, computers will be assigned to the correct site based on their IP address.

by Paul Robichaux

(troubleshooter@robichaux.net) is a principal engineer for 3Sharp, an MCSE, and an Exchange MVP. He is the author of several books, including *The Exchange Server Cookbook* (O'Reilly and Associates), and creator of the <http://www.exchangefaq.org> Web site.

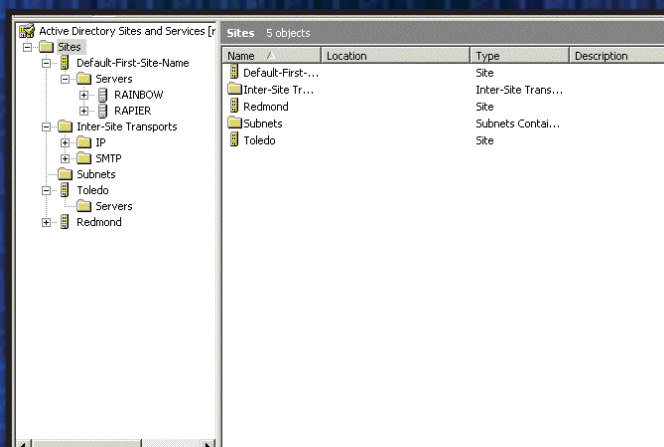


Figure 1: Adding new sites and site links via the Active Directory Sites and Services console

Site links are network constructs that join independent sites. Site links have costs associated with them; using these costs, Windows can construct a least-cost path for specific types of network connections. For example, Windows uses the set of site links you define to find the most efficient path for AD replication. For our purposes, we don't really care what the underlying network implementation of the site link is, merely that a link exists between sites.

Sites and site-link definitions are kept in order by the Windows Knowledge Consistency Checker (KCC) service. Don't confuse this with the Exchange Server 5.5 KCC, nor with the process of the same name in the Exchange Server 2003 and Exchange 2000 Server Site Replication Service (SRS). The Windows KCC is responsible for ensuring that the system's map of which DCs are in which sites is up to date. If the map diverges from the actual network topology, replication problems are likely to occur.

You add new sites and site links by using the Active Directory Sites and Services console, which Figure 1, shows. You specify the sites first, then define links to represent the underlying network connections.

Changes in Message Routing

Exchange 2003 and Exchange 2000 let you define multiple routing groups within a single Exchange organization. Each routing group has a single computer that acts as the routing group master, plus one or more routing group members. Within a routing group, individual servers maintain their own link state table: a series of vectors that indicate the endpoints of a link, its cost, and its status. You can view the contents of a server's link state table by using the WinRoute tool, which you can download from Microsoft's Web site (<http://www.microsoft.com/downloads/details.aspx?familyid=c5a8afbf-a4da-45e0-adea-6d44eb6c257b>), but it's enough to know that individual servers update their local link state tables whenever they notice changes to a link's status. When this update occurs, the server shares its updated link information with its routing group master, which in turn floods the other servers in the routing group with a knowledge update.

This architecture offers a flexible way for individual servers to determine which links are available, but it suffers from scalability

problems in large networks. Furthermore, it's devilishly difficult to get incorrect or corrupted entries out of all the link state tables in your Exchange organization; to do so, you have to turn off the routing engine service on every Exchange server in your organization, and they all have to stay off until the last server's engine is off. At that point, you can restart the routing engine and allow servers to re-create their local copies of the routing map.

In addition to these problems, it can take a while for changes to the link state table to propagate throughout the organization; routing changes can occur faster than they can be broadcast to all servers in the network. Adding to this complexity, routing groups must be linked by Routing Group Connectors (RGCs), and each connector has to specify at least one bridgehead server on each end. RGCs aren't terribly useful for routing configurations where there's only one path out of a given routing group.

Like Exchange 2003 and Exchange 2000, Exchange 2007 uses SMTP as its primary message transport protocol. However, Exchange 2007 makes some major changes to message routing to both simplify the process and improve its reliability. First, it introduces the Hub Transport server role. Hub Transport servers move messages between Mailbox servers and the outside world; for example, if Alice and Bob are on two different Mailbox servers, any messages that Alice sends to Bob must pass through a Hub Transport server. Also, messages coming in from the Internet must

pass through a Hub Transport server even if they've already passed through an Edge Transport server. Even in an organization with a single Mailbox server, you'll still need at least one Hub Transport role. But the Hub Transport role can coexist with other server roles, so you don't need a separate physical server.

The Hub Transport role acts as a sort of universal bridgehead for the site it's in; any Hub Transport server in any site can communicate with any other Hub Transport server in the organization. Mailbox servers will always attempt to route outbound mail to a Hub Transport server in the same site first, and a Hub Transport server has to accept mail for delivery to its same-site Mailbox servers. You don't have to do anything to make this process happen. If the Hub Transport server in the Mailbox server's local site is down, the Mailbox server will attempt to find the nearest Hub Transport server according to the AD site topology.

Next, Microsoft eliminated the concept of routing groups altogether. Exchange 2007 still has a single default routing group, provided for coexistence with Exchange 2003 and Exchange 2000, named DWBGZMFD01QNBJR (which happens to be EXCHANGE12ROCKS shifted down one character). All the Exchange 2007 servers you add will end up in this default routing group; there's no supported way to put them into a legacy Exchange 2003 or Exchange 2000 routing group. If you have more than one legacy Exchange routing group, you'll need to expend some effort to provide coexistence between those routing groups and Exchange 2007's routing behavior. During installation of Exchange 2007, you'll be asked to choose a bridgehead server in the first Exchange 2003 or Exchange 2000 routing group; this step is required so that the Exchange 2007 installer can create an RGC to link the Exchange 2007 routing group with your existing routing groups. You can create additional RGCs to get more granular control over the routing process if you like. For best message routing, Microsoft recommends that you create additional RGCs from each of your existing routing groups to the Exchange 2007 routing group, essentially making it the hub of a hub-and-spoke routing topology. Using this topology reduces the number of hops a message has to take between different legacy routing groups.

Learning Path

WINDOWS IT PRO RESOURCES

To learn more about Exchange Server 2007:

"Surveying Exchange 2007," InstantDoc ID 50052

"Get Ready for Exchange 2007 Now," InstantDoc ID 93652

To learn more about using AD:

"AD Sites, Part 1," InstantDoc ID 8703

"AD Sites, Part 2," InstantDoc ID 8932

"6 Essential Tools for Troubleshooting AD Replication," InstantDoc ID 24222

MICROSOFT RESOURCES

"Message Routing in a Coexistence Environment"

<http://technet.microsoft.com/en-us/library/f81aabb39-ff50-4950-a2f1-25c3f0bb66ec.aspx>

"How to Set the SuppressStateChanges Registry Value"

<http://technet.microsoft.com/en-us/library/875ae7f8-446d-4786-85d2-719ac7093cf6.aspx>



Lessons from Microsoft IT



Microsoft Exchange admin Derek Ingalls reveals the ups and downs of 18 months of “dogfooding” Exchange 2007

Riding the bleeding edge of technology is a typical part of a Microsoft IT administrator's job. Although many Exchange admins will likely migrate gradually to Exchange Server 2007 as early adopters work out the product's kinks, at Microsoft the

Exchange 2007 production rollout to 70,000 users is in full swing. The aggressive rollout is backed by more than 18 months of testing by both the Exchange product team and IT, in keeping with Microsoft's “dogfooding” philosophy of deploying its own products in house before releasing them to the public (for more information, see the Web-exclusive article “Eating Its Own Dog Food,” March 2005, InstantDoc ID 45597). Derek Ingalls, general manager, and other members of the Exchange IT staff spent all of 2006 and much of 2005 intensively engaged in testing Exchange 2007 on a 5,500-mailbox Exchange server dedicated to dogfooding. I spoke with Derek about how his team made the shift from Exchange Server 2003 to Exchange 2007 and how their dogfooding experiences can guide other IT pros on the path to Exchange 2007.

Q: What overall process did you follow in dogfooding Exchange 2007?

A: This upgrade was much different for us than previous Exchange upgrades. For us, Exchange 2003 was a lot like a service pack upgrade. We upgraded the entire environment in a weekend. But the Exchange 2007 upgrade process was quite a cycle. From the time we built the first server and put the first production mailboxes on it, we had milestones all along the way. As you know, Exchange 2007 consists of server roles, and not all the roles were done initially. Our first milestone was having the first Client Access server, then production mailboxes on a Mailbox server, then the first Edge server, and so on.

Q: What was the most difficult part of the transition to Exchange 2007?

A: We had some significant battles about storage. Because Exchange 2007 isn't as disk-I/O intensive as previous versions, you can use larger, slower, and less-costly disks for storage. And because high-availability features in Exchange 2007, such as Cluster Continuous Replication (CCR), mean you aren't so dependent on a single piece of storage, you can consider using less-reliable storage. When we were on Exchange 2003, we used a clustered SAN and had four nines of absolute availability. The notable exceptions to this availability were always related to storage outages.

The Exchange team took that problem to heart and wanted to reduce [Exchange users'] dependency on SANs specifically. So understanding that customers will want to deploy a number of different storage scenarios in Exchange 2007, they needed us to validate the “crazier” scenarios—such as using DAS or Serial Attached SCSI (SAS).

There are a few other site-related changes in Exchange 2007:

- Public folder referrals have changed. Exchange 2003 and Exchange 2000 use a complicated algorithm to find the least-cost replica for a given mailbox client. That algorithm is dramatically simplified in Exchange 2007: The Information Store (IS) builds a list of all the public folder databases it can find, ranking them by access cost; databases in the current site are least expensive, and the rankings for the rest of the list are controlled by the site-link costs.
- Unified Messaging (UM) servers use site membership to find the best Hub Transport server for delivering a message to a particular user mailbox.
- Client Access servers use site membership to determine whether a user request should be redirected to another Client Access server. For example, say user A has a mailbox in site 1, but she connects to a Client Access server in site 2. The site 2 Client Access server can detect that the user's mailbox is in site 1, so it will redirect the request to a site 1 Client Access server.

How Messages Flow

Remember that a Hub Transport server must touch every message sent between two Exchange 2007 users, even if the users are on the same Mailbox server. With that in mind, we can explore some of the interesting differences in Exchange 2007 message routing. There are really only two possible scenarios: Either the sender and recipient are in the same site, or they're in different sites.

Consider the simplest case: two users on the same Mailbox server. User A's message is submitted to the IS, which routes it to the Hub Transport server (which, in this case, is probably on the same physical server), which routes it to B's mailbox. Site information doesn't play an obvious role in this process, but the Hub Transport server still has to check AD for site data to determine whether B's mailbox is in the same site. From this, you can easily see that the same-server and same-site cases are essentially the same and will work the same way.

The more complex—and interesting—case is when the sender is in one site and the recipient is in another. In this case, the sender's client submits the message to the sender's Mailbox server, which then sends it

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SCHEDULE AT A GLANCE

SUNDAY, APRIL 1, 2007

7:00 am - 6:00 pm	Conference Registration
9:00 am - 4:00 pm	Pre-conference Workshops
6:30 pm - 8:30 pm	Opening Keynote
8:30 pm - 10:00 pm	Expo Hall Opens

MONDAY, APRIL 2, 2007

7:00 am - 6:00 pm	Conference Registration
7:00 am - 8:00 am	Continental Breakfast
8:00 am - 9:00 am	Keynote
9:30 am - 10:30 am	Conference Sessions
10:45 am - 11:45 am	Conference Sessions
11:45 am - 1:30 pm	Lunch
1:30 pm - 2:30 pm	Conference Sessions
2:45 pm - 3:45 pm	Conference Sessions
4:15 pm - 5:15 pm	Conference Sessions

TUESDAY, APRIL 3, 2007

7:00 am - 6:00 pm	Conference Registration
7:00 am - 8:00 am	Continental Breakfast
8:00 am - 9:15 am	Conference Sessions
10:00 am - 11:15 am	Conference Sessions
11:30 am - 12:45 pm	Conference Sessions
12:45 pm - 2:15 pm	Lunch
2:15 pm - 3:30 pm	Conference Sessions
4:15 pm - 5:30 pm	Conference Sessions

WEDNESDAY, APRIL 4, 2007

7:00 am - 8:00 am	Continental Breakfast
8:00 am - 9:15 am	Conference Sessions
9:30 am - 10:45 am	Conference Sessions
11:30 am - 12:30 pm	Conference Sessions
12:30 pm - 2:15 pm	Lunch
2:15 pm - 3:15 pm	Conference Sessions
3:15 pm - 3:45 pm	Ice Cream Break
3:45 pm - 4:30 pm	Closing Session

THURSDAY, APRIL 5, 2007

9:00 am - 4:00 pm	Post-conference Workshops
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EXCHANGE 2007: GETTING TO KNOW YOU



TONY REDMOND HP

Exchange 2007 represents the third generation of Exchange server. The migration from the first generation (5.5) to second (2000) posed some problems because of the requirement to deploy the Active Directory and a new architecture for Exchange. The same may be about to happen as we move to Exchange 2007 because the same type of architectural change exists alongside the need to deploy a brand new Windows 64-bit platform. This session covers the essential points that you need to know about Exchange 2007 to help you prepare to deploy the new version, including the many holes that an unwary administrator can fall into.

Tony Redmond is the Vice President and Chief Technology Officer for HP Services. He is responsible for the technology strategy and leadership of HP Services, including the development of the HP Services technology community, including overseeing the implementation of the Technical Career Path (TCP), Professions, and advancing a knowledge culture within HP Services. He is responsible for driving a common R&D and technology leadership across the HP Services business units. Tony is the Security Lead for HP and manages the HP Security Office, which is responsible for setting the strategy and direction for HP's security initiative and coordinating activities across all business units.

ATTACKER TRENDS AND TECHNIQUES: AN UPDATE



STEVE RILEY MICROSOFT

The bad guys just keep getting better! They're constantly changing their tactics and inventing new techniques to cause you harm, damage your data, and make your resources unavailable. Why do they do this? What motivates someone to—let's call it what it is—commit computer-related crimes? How have they changed and improved? What kinds of attacks are popular now and why are they so effective? What might we expect to see in the future? Steve Riley will help you understand the latest in attacker trends and techniques so that you can plan appropriately and implement effective processes and technologies to mitigate their threats.

Steve Riley's career at Microsoft began in 1998 in the telecommunications practice of Microsoft Consulting Services where he worked with several ISPs and ASPs to design highly-available network architectures, develop hosting platforms for various custom and off-the-shelf applications, and deploy complex multi-site VPNs. His specialization in security led him next to the security consulting practice, where he worked with many customers to conduct security assessments and risk analysis, deploy technologies for attack prevention and intrusion detection, and assist with occasional incident response efforts. Steve is now a product manager in Microsoft's Security Business Unit. He is a frequent and popular speaker at conferences worldwide, often appearing in Asia one week and Europe the next; Steve's speaking engagements have included multiple Microsoft TechEds and other conferences, plus SANS, RSA, Black Hat, Windows IT Pro roadshows, and InfoSec US. When not evangelizing the benefits of Microsoft security technology, Steve spends time with customers to better understand the security pain they face and show how some of that pain can be eliminated. Steve's technical specialties include network and host security, communication protocols, network design, and information security policies and process.

LIVING THE LONGHORN LIFE: WHAT'S UP WITH SERVER 2007 (OR MAYBE, 2008)



MARK MIINASI MR&D

Microsoft released the new desktop, Windows Vista, in November 2006... but that's just the start. A new version of Server's right on its heels—formerly code-named "Longhorn Server," it'll either be named Windows Server 2007 or 2008, depending on when it ships. But no matter what its name, Server 2007/8 will pack a ton of new stuff, from some really good news in Active Directory to some nifty new deployment tools, a quarantine system that'll help you keep the worm-ridden systems off of your network, a revamped Web server, and a few truly long-awaited changes in group policy. How can you find out about all of this? Well, you could download a few terabytes worth of white papers and start sifting through them to separate the wheat from the chaff, or you could attend this short session by Mark Minasi, the guy who's been explaining new operating systems since Windows 1.0. Come to this session and find out why Server Core may be your favorite new piece of software!

Mark Minasi is an author, a technology columnist, a commentator, a keynote speaker, and an all-around alpha geek. What separates him from many of the other alpha geeks is that he knows how to explain things to normal humans and often make them laugh while doing it. He's probably best known for his books, *Mastering Windows NT Server* (Sybex), *Mastering Windows 2000 Server*, and *The Complete PC Upgrade and Maintenance Guide* and his columns in *Windows IT Pro*. Mark has also authored 17 other technology books, spoken on technical topics in 20 countries, and written and appeared in a dozen technical education videos. His most recent works are *Mastering Windows 2000 Server*, Third Edition and *Mastering Windows XP Professional*. He has also written *Linux for NT/2000 Administrators* and a seventh edition of *Mastering Windows NT Server 4.0*.

SESSIONS AND SPEAKERS ARE SUBJECT TO CHANGE. SEE WEB SITE FOR UPDATES AND ADDITIONAL SESSIONS.

MICROSOFT EXCHANGE SESSIONS PRESENTED BY MICROSOFT

It's the all-new, rearchitected, more powerful messaging and groupware platform from Microsoft: **Exchange Server 2007!** Packed with new features, new architectural options, and new capabilities, Exchange Server 2007 is also the first fully automatable and command-line-managed server product from Microsoft, leveraging the Windows PowerShell shell and scripting environment. Rely on Exchange Connections to connect you with the most respected and relied-upon subject-matter experts in the world for Exchange Server 2007. **Come to Exchange Connections to:**

- Learn about new architecture options in Exchange Server 2007, including ways of scaling out your Exchange Server environment bigger and better than ever before.
- Discover how Exchange Server 2007 works under-the-hood, including data management, engine details, troubleshooting and disaster recovery, and much more.
- Provide your users with anywhere e-mail access through an all-new Outlook Web Access, mobile e-mail access, and much more.
- Keep your Exchange Server 2007 environment secure with information on internal security, antivirus, anti-spam, and other measures that keep your environment and your users safer.
- Learn about deployment and migration techniques and issues, making your Exchange Server 2007 migration and deployment easier, safer, and faster.

EXCHANGE CONNECTIONS COVERS THE TECHNOLOGIES YOU NEED:

DISASTER RECOVERY

- Continuous Backup
- Standby Cluster Recovery
- Online Backup Recovery

SECURITY

- Sender ID
- Creating and Testing Mail Hygiene

TROUBLESHOOTING

- Troubleshooting Message Flow
- Troubleshooting DNS
- Advanced SMTP Troubleshooting

MIGRATION AND DEPLOYMENT

- Migration Issues
- Deployment Techniques
- Performance Optimization

END-USER FEATURES

- Client Access Server
- Small Business Mobility
- Getting Rid of PSTs

MICROSOFT EXCHANGE SERVER 2007: THE NEXT GENERATION OF EXCHANGE

Exchange Server 2007, the next major version of Exchange, will be a leap forward in enhancing the information worker's access to larger mailboxes while giving the e-mail administrator a more manageable and secure e-mail infrastructure. In this session, we provide an overview of the product direction and provide a sneak peak at some of the new features that will be included in the product.

MAIL THAT SPEAKS TO YOU: UNIFIED MESSAGING IN MICROSOFT EXCHANGE SERVER 2007

Microsoft is integrating Unified Messaging natively into Exchange Server 2007. In this session you will learn the features, benefits, and architecture of Exchange Unified Messaging. See how Exchange can take voice mail and fax messages, how you can call in over any phone to access your voice mail, e-mail, calendar or contacts, how you can build automated attendants, and how speech access is integrated into the product. Learn how easy it is to configure and deploy Exchange Unified Messaging for your organization.

GETTING STARTED WITH MICROSOFT EXCHANGE SERVER 2007: SIMPLE INSTALLATION, SETUP AND ADMINISTRATION SCENARIOS

Exchange Server 2007 is now built on standard Microsoft installer so that you can take advantage of patching services such as the Software Update Service (SUS). Exchange Server 2007 supports new server roles for flexible deployment of the topologies you require and the power to automate installation. These are just some of the new advancements in the Exchange Server 2007 set-up experience. This is a must-see session for a high-level overview and walkthrough of how you will be deploying Exchange 2007.

EXCHANGE 2007 ARCHITECTURE AND DESIGN

Ever wondered how a large enterprise plans and implements design and architecture of its next generation of messaging system? Join us in this session where engineers from the Microsoft IT messaging team will uncover the details on how Exchange 2007 infrastructure was introduced and fully deployed in a 120,000+ mailbox production environment. Topics will include: messaging topology design, hardware planning for various Exchange server roles, client access server and mobility scenarios, transport architecture, mailbox server and storage designs, backup, restore and high availability strategies.



MICROSOFT EXCHANGE SESSIONS PRESENTED BY MICROSOFT

MANAGING EXCHANGE SERVER 2007: THE NEW EXCHANGE MANAGEMENT CONSOLE AND SHELL

Imagine having a toolset that is flexible enough to easily deploy and administer a single Exchange server and yet powerful enough to completely automate those same actions for hundreds of servers. Yes, you heard right, Exchange Server 2007 will deliver a new intuitive GUI experience allowing you to quickly provision Exchange functionality while the new command-line experience will allow you to automate your world. This session is loaded with demonstrations showing off the new Exchange 2007 toolset and also highlights the underpinnings of this new revolutionary architecture which is built on the groundbreaking Windows PowerShell technology.

MOBILE ACCESS TO EXCHANGE 2007 AND LIVE COMMUNICATIONS SERVER ANYTIME, ANYWHERE, AND ON ANY DEVICE!

Do you need to provide anytime, anywhere access to Exchange 2007 and Live Communication Server in your organization? This session will cover the enhancements in Exchange 2007 for Windows Mobile devices as well as the improvements in Outlook Web Access as well as the future mobile messaging capabilities of Exchange 2007. We will also investigate how to deliver Live Communication Server's capabilities to mobile users.

MESSAGE SECURITY AND HYGIENE IN EXCHANGE SERVER 2007

Out of the box, Exchange Server 2007 customers will find a solution that helps protect their messages and messaging infrastructure from unwanted spam, viruses, and hackers. You'll learn how Exchange Server 2007 uses Kerberos and Transport Layer Security (TLS) to authenticate and encrypt mail within your network, and how message hygiene—including anti-spam and antivirus have been implemented in Exchange Server 2007. You'll also see how Administrators can maintain their network by adjusting spam and virus settings and implementing the appropriate security policies, as well as how end users can use simple and familiar interfaces to recover junk e-mail and apply message classifications.

EXCHANGE HOSTED SERVICES

E-mail is the lifeblood of business, and enterprises rely on IT to keep their communication arteries secure, protected, and compliant. Spammers, hackers, virus-writers, regulators, and spies are making the IT challenge increasingly difficult, further taxing the limits of already resource-strained staff. Attend this session to learn how Microsoft Exchange Hosted Services provides customers with a compelling solution against these types of attacks. We'll review the business drivers impacting you and how you can deploy and administer this managed solution.

EXCHANGE 2003 BEST PRACTICES FROM MICROSOFT IT

Drawing on its tremendous experience with Exchange 2003 architecture, design, and operations, Microsoft IT has developed comprehensive and highly effective best practices to design, run, and maintain its Exchange environment. These best practices are the foundation of the Exchange Center of Excellence, an initiative to reduce customer issues and mis-configurations. This session summarizes how Microsoft IT designed its Exchange 2003 infrastructure and successfully ran it for several years before moving to Exchange 2007. Topics include the Microsoft IT Exchange site consolidation story, cluster design, back-up/restore methodology, mobile messaging infrastructure design practices, Internet gateway, and e-mail hygiene solutions.

CO-EXISTENCE AND MIGRATION OF LOTUS NOTES/DOMINO MESSAGING TO THE MICROSOFT PLATFORM

This session provides you with up-to-date information on the tools and guidance you need to move from Lotus Notes/Domino to the Microsoft Collaboration Platform. This session covers co-existence and migration of the Domino directory, messaging, and applications.

THE UNIFIED COMMUNICATIONS TECHNICAL VISION AND STRATEGY

This session will outline Microsoft's vision and technology strategy for Unified Communications. Come and hear directly from Microsoft's Unified Communications leadership about our roadmap and priorities for bringing together business communications infrastructure and user experience. If your organization is considering its strategy for e-mail, voice mail, instant messaging, telephone/VoIP, and conferencing, this session will provide you with Microsoft's approach to addressing these critical organizational needs and improve the modern organization's ability to communicate and collaborate.

INTEGRATING YOUR LEGACY PBX AND NEXT GENERATION VOICE INFRASTRUCTURES WITH MICROSOFT OFFICE LIVE COMMUNICATIONS SERVER 2005, OFFICE COMMUNICATIONS SERVER 2007, AND EXCHANGE SERVER 2007 UNIFIED MESSAGING

If you want to learn about how to integrate your existing voice infrastructures with Exchange Server 2007 and Office Communications Server 2007 (or Live Communications Server 2005), then come to this highly interactive session where you can get your tough questions answered by Microsoft experts.

SESSIONS AND SPEAKERS ARE
SUBJECT TO CHANGE.
SEE WEB SITE FOR UPDATES
AND ADDITIONAL SESSIONS.

DIVE INTO THE NEW RELEASES WITH MICROSOFT ARCHITECTS AND INDUSTRY EXPERTS!

MICROSOFT EXCHANGE CONFERENCE SESSIONS

HOW DO YOU MIGRATE FROM A 250,000 MAILBOX EXCHANGE 2003 ENVIRONMENT TO EXCHANGE 2007?

STAN FOSTER

HP's e-mail environment is well distributed and supports over 250,000 mailboxes. HP has always worked closely with Microsoft on Exchange beta programs and was deploying Exchange 2007 internally long before the product hit the streets. But deploying Exchange 2007 to such a large organization as HP's is not as easy as simply slotting the DVD into the drive and running Setup. In this session, we'll describe the mechanisms and processes involved in such a large-scale migration.

REAL-LIFE DEPLOYMENT OF EXCHANGE 2007 UM. LEARN WHAT IT TAKES TO GET THERE

LARRY RIBA/STAN FOSTER

Deploying the Unified Messaging functionality of Exchange 2007 into a real-world environment is a lot different than simply installing the UM role on a standalone server. In this session, the speakers will describe their experiences of deploying UM in a large-scale Exchange environment to support an evaluation of UM for selected users.

WINDOWS SERVER CLUSTERS FOR EXCHANGE ADMINISTRATORS

JUERGEN HASSLAUER

This session provides an overview of clustering services within the Windows operating system. With Exchange Server 2007 you have to set up a Majority Node Set (MNS) cluster if you want to use Cluster Continuous Replication (CCR). You also have to understand the file share witness feature if you want to deploy CCR. Another option with Exchange Server 2007 is deploying a Single Copy Cluster (SCC) using a shared quorum architecture. This configuration is also available for Exchange Server 2003. We will introduce the new features related to clustering planned for Windows Server codename "Longhorn," and explain which pain points this will fix. You will learn the requirements for setting up a server cluster and find out how to recover from certain cluster specific failures. A virtualized environment will be used to demonstrate the topics discussed.

EXCHANGE BACKUP AND RECOVERY USING VOLUME SHADOW COPY SERVICES

JUERGEN HASSLAUER

Starting with Exchange Server 2003 it was possible to back up and restore Exchange databases using Volume Shadow Copy Services (VSS). Exchange Server 2007 enhanced the support for VSS backup and recovery. You have to use VSS if you want to back up the database copy created by Local Continuous Replication (LCR) or Cluster Continuous Replication (CCR). This topic gets even

more interesting with the upcoming release of Microsoft System Center Data Protection Manager (DPM) version 2 by adding support for Exchange backups to DPM. This session provides an overview of the components and their interaction used by an Exchange VSS solution. You will learn what you have to consider during your storage design to meet your service levels. We describe how VSS helps to prevent a backup from disturbing your production Exchange server, and how you can use a shadow copy to recover a corrupt storage group.

EXCHANGE 2007 HIGH AVAILABILITY SHREE VISHWANATHAN

Well folks, Exchange 2007 is here and with it has brought a new way of thinking while designing for high availability. Continuous replication in Exchange 2007 introduces some new "out of the box" availability options, particularly for the mailbox server role, such as LCR (Local Continuous Replication) and CCR (Cluster Continuous Replication). This session unravels the new features while highlighting factors to consider during the planning and design of Exchange 2007 environments.

CROSS FOREST FEATURES IN EXCHANGE 2007

WENDY FERGUSON

Exchange 2007 brings many new features to support cross-forest environments. In this session, we'll describe those features and give practical best practice guidance on how to plan, design, and implement your multitenant environment.

EXCHANGE 2007 WEB SERVICES

WENDY FERGUSON

Exchange 2007 has a multitude of Web services that radically alter the mechanism by which client applications and programmers can make use of Exchange features and functions. In this session, we'll describe all of the new Web services, what they are, and when they come into play.

TO DO, OR NOT TO DO? MANAGING LARGE MAILBOXES

MISSY KOSLOSKY

Are your end users pack rats? Are YOU a pack rat? What are the actual ramifications of large mailbox sizes in Exchange? We'll discuss size limits for mailboxes, the scalability of Information Stores, and what you should be doing in order to keep your end users and your servers happy!

ACTIVE DIRECTORY SITES AND SERVICES—IT'S NOT JUST FOR ACTIVE DIRECTORY ANYMORE!

MISSY KOSLOSKY

Message transport in Exchange Server 2007 relies on your Active Directory Sites and Services config-

uration—do you need to revisit the configuration of Active Directory in your organization? We'll talk about the implications of the routing changes in Exchange 2007, and what they might mean to your current configuration.

DIVESTING RESOURCES IN EXCHANGE SERVER

MISSY KOSLOSKY

Your company has sold off a portion of its business—what do you need to do to remove the associated mailbox data from your organization? Let's delve into the ways that we can transfer data from one organization to another while retaining the security of our messaging systems.

EXCHANGE 2007 AND COMPLIANCE KIERAN MCCORRY

Exchange 2007 allows you to implement various e-mail policies that can help you meet your compliance and records management needs. Similarly, Microsoft Office SharePoint Server 2007 enables you to put much more control on your enterprise document content. Where do all these technologies fit together and how will your users avail of them? In this session, we cover the major advancements in this area highlighting how you can make the best use of these technologies.

BEST PRACTICES FOR DATA PRIVACY WITH YOUR E-MAIL SYSTEM

KIERAN MCCORRY

Everyone knows of the need for system administrators to access mailboxes from time to time to check something out. But are they breaking the law when they do so. The sessions gives an outline of some of the regulations that are relevant when accessing personal data in the US and elsewhere and helps you implement a data access policy to keep you on the right side of the law.

HOW TO GET YOUR END USERS HAPPY WITH LIVE COMMUNICATIONS SERVER 2007

LEE MACKEY

With IM traffic supposedly surpassing e-mail traffic by 2008, how are we as IT Professionals preparing ourselves for this? When end users will install anything and everything to get connected to their kids, significant others, coworkers, and anyone else they want to chat with, how do we tackle this to ensure that we are meeting all requirements from Sarbanes-Oxley, or HIPAA? What tools do we have to ensure that we are following the rules that have been set for us. How do we get clients to communicate over Secure IM from every IM cloud? With Live Communications Server (LCS) 2007, you now have the one-stop-shop. You have the ability to implement a secure communication mechanism that will allow you to get them off the ground and commu-

nicating. With LCS you will have the ability to set up Instant Messenger so your end users will be happy, have the connections they are looking for, and the ability to collaborate with peers, customers, and vendors with little or no effort. In this session we will go over typical deployments, typical policies, extras you might want to consider, and tools to help ensure your end users are just a click away from their buddy list.

MOBILE CLIENT CONNECTIVITY FOR EXCHANGE (ACTIVESYNC) LEE MACKEY

Microsoft Exchange 2003 with SP2 has become the buzzword in the IT industry. IT Admins no longer need the Blackberry or Goodlink server to get critical data to their end users. Typically with these products the technology requires extra access, more hardware, and sometimes very complicated issues that are nearly impossible to troubleshoot. Microsoft has helped IT Admins with a solution that handles all of these issues. You no longer need extra hardware, or even extra permissions to manage Exchange Server 2003 SP2. This session will walk you through the installation, configuration, and tools to help troubleshoot ActiveSync.

ESSENTIAL TOOLS FOR EXCHANGE ADMINS LEE MACKEY

Microsoft Exchange 2003 SP2 / 2007 can be very complicated or simple depending on your organization's requirements around e-mail and delivering that service to your end users. In this session, we'll go through a number of tools that will help you troubleshoot and fix issues that you are experiencing, as well as different support options around supporting Exchange. This session will give you details on what to do and how to do it to ensure your success in a critical pinch to get mail flowing again. We don't cover everything, but we will cover the basics and some cool tools and methods for figuring out what's going on.

DCAR WITH EXCHANGE DEVIN GANGER

Discovery, Compliance, Archival, and Retention: they're challenges every Exchange administrator faces. Whether you're using Exchange 2000, 2003, or 2007, join the author of the *Windows IT Pro* "E-mail Discovery and Compliance" e-book to find out how to solve these challenges.

10 TIPS TO MAKE YOUR EXCHANGE SERVER A GOOD NET NEIGHBOR DEVIN GANGER

Many Internet mail administrators consider Exchange to be a poorly behaved SMTP MTA. All too often, these perceptions are rooted in configuration errors surrounding Exchange, rather than in any flaw in the product. Learn these common

(and in many cases) simple configuration changes you can make that will keep your external mail running smoothly.

IRON CHEF: USING POWERSHELL WITH EXCHANGE 2003 DEVIN GANGER

While the new Exchange Management Shell is only designed to manage Exchange 2007 servers, the underlying PowerShell technology can make managing and scripting your Exchange 2000 and 2003 servers a lot easier. Join one of the authors of the *Exchange Server Cookbook* and learn how to take advantage of PowerShell to make scripting Exchange easier than ever.

CONTINUOUS BACKUP FOR EXCHANGE PAUL ROBICHAUX

Exchange makes full use of both conventional and point-in-time backup technologies. However, many administrators want more! This session will explain the underpinnings of continuous backup solutions from Microsoft and third-party vendors for Exchange 2003 and Exchange 2007 so you can choose an appropriate solution for your needs.

POWERSHELL FOR BEGINNERS PAUL ROBICHAUX

The Exchange Management Shell (EMS) is a key part of the Exchange 2007 experience. What if you're not a scripter? Don't worry; you can still get plenty done with EMS after just a little learning. This session covers the basics of what you need to know about how EMS works and what you can do with it.

EXCHANGE 2007 UNIFIED MESSAGING DEEP DIVE PAUL ROBICHAUX

Ever wonder how Exchange 2007 UM does its magic? Come to this session to look under the covers and learn how the UM server, your PBX, and the worldwide phone network work together—in depth.

TROUBLESHOOTING PERFORMANCE ISSUES IN EXCHANGE 2003 WILLIAM LEFKOVICS/KEVIN MILLER

We will outline troubleshooting steps for common performance issues experienced with Exchange 2003, specifically dealing with sluggish performance. We will walk through troubleshooting steps to isolate causes from CPU, disk space, memory, bandwidth and third-party applications. We can also use sysinternals filemon to show I/O distribution.

MESSAGE HYGIENE IN EXCHANGE 2003 WILLIAM LEFKOVICS/KEVIN MILLER

We will review the layered approach administrators can apply to help keep users' inboxes clean of

productivity-draining content. We won't waste time on spam statistics. We'll discuss configuring each component and its value to the overall goal.

EXCHANGE 2007 TRANSPORT RULES WILLIAM LEFKOVICS/KEVIN MILLER

Replacing the cumbersome event sinks, transport rules are easy to administer and resemble a GUI we might see on an e-mail client. We can show how transport rules can make the administrator's job simpler. They are quite granular. We will highlight common ones and ones that might make administrators happiest.

EXCHANGE 2007: THE FIRST 100 DAYS JIM MCBEE

Follow the real-life implementation of an early adopter of Exchange 2007. This session will start with an overview of the organization's Exchange 2000 architecture and some of their goals for an early implementation of Exchange 2007. The session will then cover the planning process, server consolidation factors, hardware requirements, existing software that integrates with Exchange, and meeting prerequisites. This session will also include many of the hurdles that this organization faced in completing their migration.

ARE YOU A LOW-HANGING FRUIT? JIM MCBEE

Hackers frequently target the simplest and easiest systems that they can exploit. If common exploits don't work they usually move on. Is your Exchange system vulnerable to "low-hanging fruit" compromise? This session will start by covering simple things you can do with Exchange 2000/2003/2007 to ensure that you are not one of the low-hanging apples on the tree. After covering the basics, we will then cover additional security mechanisms that tools such as Microsoft ISA Server, Edge Transport services, and other tools can provide when implementing additional layers of security and message hygiene.

EXCHANGE 2003: BEST PRACTICES DAY-TO-DAY JIM MCBEE

What should you be doing on a daily basis to keep your Exchange servers stable and running optimally? Topics in this session include the basic tasks that should be performed on every Exchange 2003 server and events to watch for in the event logs. What can you do to improve your Exchange operations, customize your operations, and tweak Exchange to meet the requirements of your organization? Also covered are some "worst" practices in Exchange management such as "over administering" the Exchange server and common configuration mistakes.

HANDS-ON COURSES

YOU MUST PRE-REGISTER!

Microsoft **EXCHANGE** Troubleshooting Course *Hands-on*

Sign up for one, two, or all three days of this troubleshooting course. Inside you will learn the issues and methods for troubleshooting and resolving Exchange Server 2003 problems. Each day is packed with in-depth technical information not found in other courses, with Exchange Server 2003 hands-on-labs that walk you through the tools and procedures you'll need when troubleshooting Exchange Server 2003.

You must be registered for the conference to attend the troubleshooting classes. You must indicate when you register, which days you plan to attend.

EXCHANGE TROUBLESHOOTING SPECIALIST COURSE TOPICS INCLUDE:

MONDAY, APRIL 2

TROUBLESHOOTING DISASTER RECOVERY WITH EXCHANGE SERVER 2003

Covers the Exchange Database Architecture in detail along with the tools and processes used to recover an Exchange Server 2003 environment. In this one-day workshop the student gets hands-on experience recovering from different types of disaster recovery scenarios. **Just Added:** An overview of Exchange Server 2007 Disaster Recovery enhancements.

TUESDAY, APRIL 3

TROUBLESHOOTING MESSAGE FLOW IN EXCHANGE SERVER 2003

Reviews the Exchange Server 2003 Transport architecture, message flow dependencies, Active Directory (a messaging dependency), troubleshooting tools, DNS issues that affect Mail Flow, Recipient Update Service, and troubleshooting mail flow. **Just Added:** An overview of Exchange Server 2007 message flow.

WEDNESDAY, APRIL 4

TROUBLESHOOTING PERFORMANCE IN EXCHANGE SERVER 2003

Covers performance monitoring concepts, monitoring performance strategies, and the performance monitoring process. These topics are followed by a review of the tools and how to isolate the performance problem. **Just Added:** An overview of Exchange Server 2007 sizing and tools.

"Very informative session. Lecturer has impeccable knowledge of the subject. This course is extremely useful and relevant to anyone who manages Exchange."

- Vaughn Jardine

THE UNIVERSITY OF THE WEST INDIES

"This is the best courseware, presenter, and labs I've ever attended. And I've been to many. Well done."

-2005 Orlando course attendee



HANDS-ON COURSES

YOU MUST PRE-REGISTER!

Windows Scripting and Automation Course *Hands-on*

YOU MUST PRE-REGISTER FOR THE VBSCRIPT COURSES.

You will need to bring your own laptop computer with power cord and CD-Rom drive. See Web site for configuration details.
www.WinConnections.com

You must be registered for the conference to attend the scripting and automation course.

MONDAY, APRIL 2

VBSCRIPT MASTER COURSE

Take VBScript further with scripting guru Don Jones! Learn to utilize databases within your scripts to build more effective and powerful script-based tools. Learn to use the complex WSF format (which Don conveniently de-complicates for you) to build command-line tools by using VBScript—a great way to share your scripts with less experienced technicians. You'll also learn to build a graphical user interface for your scripts using HTML Applications (HTAs). Don rounds out this Master Course with a thorough debugging methodology that will get your scripts up and running faster than ever. Requires attendance at the VBScript Basic Training pre-conference workshop, or equivalent independent experience. This is not an introductory course and assumes prior knowledge of WMI, ADSI, and the VBScript language.

This is a three-part course. You must sign up for Part 1, 2 and 3.

TUESDAY, APRIL 3

POWERSHELL MASTER COURSE

Go beyond the basics and make Windows PowerShell a workhorse for administrative automation and reporting. Scripting guru Don Jones helps you learn complex functionality like how to utilize databases, how to work with regular expressions, and even an introduction to building a graphical user interface from PowerShell's command line. Learn about formatting, sorting, and filtering options that make your PowerShell commands and scripts more effective, and learn best practices for writing effective, maintainable PowerShell code. Requires attendance at the Windows PowerShell Basic Training pre-conference workshop, or equivalent independent experience. This is not an introductory course.

This is a three-part course. You must sign up for Part 1, 2 and 3.

Register NOW!
These hands-on classes
sell out quickly!

Immerse yourself in the latest Windows administrative technologies—**Windows Vista, Windows “Longhorn” Server, WDS, Virtualization,** and more—with **experts from Microsoft Corporation and world-renowned subject matter experts!** Windows Connections offers the deepest and most relevant education for Microsoft Windows administrators, especially in this time of important new products and technologies.

Microsoft is bringing major changes for 2007, and now is the time for you to quickly come up to speed. **Be prepared for the newest technologies and products,** through the real-world experience of our expert presenters and instructors. “Insider” details help you make sense of new technologies, apply them to your environment, and master them faster and more effectively.

- For **Windows Vista**, learn about hidden security truths, volume license activation (a major deployment hurdle if you’re not ready), new Group Policy settings, application compatibility issues, and top features that will save you time and money—and that you’re likely to overlook!
- For **Windows “Longhorn” Server**, the next generation of Microsoft’s server platform, learn what’s changed in Active Directory Services, how name resolution has changed, and how File Replication Services have been superseded by DFS-R.
- General **Windows Technologies** changes speed up deployment and re-imagine the way your enterprise works. Learn about Windows Deployment Services, automated provisioning of secure business data shares, how SharePoint will replace your file servers, and how to automate and improve user and group administration.
- This is the year of **virtualization** as hardware and software hypervisor technologies converge. Learn about virtualization strategies for the enterprise, how virtualization can revolutionize your disaster recovery plan, and more.
- Become a more effective and efficient administrator through **scripting and automation**, including powerful tips in VBScript and a comprehensive course in Microsoft’s newest automation solution, Windows PowerShell.

IMAGING WINDOWS VISTA

An important component of the new imaging capabilities provided with Windows Vista is the Windows Imaging, or WIM, file format. We will discuss how this new file-based image format provides advantages and capabilities beyond typical sector-based imaging solutions. We will look at how to capture a Windows Vista image, how to view these image files, and edit these files and the configuration settings within the image files themselves using ImageX. Finally, we will look at options for deploying the WIM file. The WIM file is installed differently than previous images and there are new options for deployment within an organization. We are not going to go into detail of the deployment process but will give an overview of how it works and its role in the imaging process.

WINDOWS “LONGHORN” SERVER TECHNICAL OVERVIEW, PART 1

This is part one of a two-part session discussing the features of Windows “Longhorn” Server. In this session, we will look at new features that will enhance productivity and performance. We will discuss new features in IIS and Clustering support. We will also demonstrate using the new Windows PowerShell for administration and the new Performance and Reliability Monitor.

SQL 2005 SECURITY FEATURES

SQL Server 2005 breaks security down into a number of distinct areas. We will be introducing the security concepts that are new to SQL Server 2005, such as user-schema separation. We will also see how SQL Server 2005 implements current security concepts like encryption in ways that are new to this release. The session will look at security from the perspective of the server, the database, and database objects, and some of the different options you can use at each level to help secure your data. The session will also take a look at how you can monitor the security of your SQL Server.

DEPLOYING VISTA WITH BDD 2007

Business Desktop Deployment, or BDD, has changed the face of scaled desktop deployments, providing true end-to-end guidance and automation for all required desktop deployment processes. In this session we will look at how the deployment toolset has changed for operating systems. We will look specifically at how a Windows Vista deployment will be accomplished. We will see how the new WIM image format works and how to design a light-touch or zero-touch deployment of the new operating system. Finally, we will tour and use the new Business Desktop Deployment 2007 Solution Accelerator.

WINDOWS "LONGHORN" SERVER TECHNICAL OVERVIEW, PART 2

In this second part of our overview of Windows "Longhorn" Server, we will provide a brief introduction to Network Access Protection, which will allow administrators to enforce compliance with health policies for network access or communication. Also, Terminal Services has undergone some significant changes and improvements since Windows 2003.

WINDOWS VISTA SECURITY FEATURES

Discover new features in Windows Vista that will help keep the bad stuff out. We will discuss improvements in the Windows Firewall, IE security features, User Account Control, Network Access Protection, and more.

GROUP POLICY IN VISTA

This session will describe the new and updated features in group policy and how these help alleviate problems that were present with previous versions of Windows. With the number of Group Policy settings having increased from approximately 1,700 in Windows Server 2003 with Service Pack 1 to approximately 3,000 in Windows Vista and Windows Server "Longhorn," we will only look at the biggest improvements and give a good starting point for you to utilize the new Group Policy settings. We will also introduce Quality of Service policies which are available with Windows Vista.

NETWORK ACCESS PROTECTION IN WINDOWS "LONGHORN" SERVER

It's not enough to just keep the "bad guys" out of the network anymore. Authorized users and workstations can also contribute security issues behind the firewall. Network Access Protection allows you to check the health of these systems before granting them full success to the network. We will discuss using NAP with IPSec, DHCP, VPN Policies and more.

SECURING THE BRANCH OFFICE WITH ISA 2006

In this session, we will cover the tasks for deploying an ISA solution in a branch office. This will involve configuring both the headquarters and branch office sites, and deploying a site-to-site VPN connection using the layer two tunneling protocol over IPSec, or L2TP. We will explore the new performance-enhancing features that can really make a difference for branch office users, including HTTP compression, content caching, and traffic prioritization using DiffServ. Finally, we will focus on monitoring ISA Servers with MOM 2005 and the ISA Server management pack, including how to deploy the MOM agent to an ISA Server.

WINDOWS VISTA FIREWALL AND ADVANCED SECURITY

In this session, we are going to look at features of firewalls in general and specifically the firewall included with Windows operating systems. We will be using some of the features in previous versions of Windows Firewall to highlight the new benefits of the Windows Firewall with Windows Vista. Vista provides greater configuration options resulting in greater security for different connection methods, such as LAN or wireless connections. We will look at ways to configure exceptions for more control over incoming and outgoing traffic.

UNIX INTEROPERABILITY IN WINDOWS "LONGHORN"

We live in an increasing integrated world where Windows servers must play in the same sandbox with many other operating systems. In this session, we will discuss interoperability improvements in Windows "Longhorn" server that allow Windows and Unix-based systems to live together in better harmony.

WHAT IS FOREFRONT AND HOW WILL IT HELP ME?

Today's security market landscape is complex and fragmented. Poor interoperability, separate management consoles for each product, and a general lack of unified event reporting and analysis all present challenges to the system administrator. Learn how the Forefront family of products can protect your network and systems including client workstations, Exchange, SharePoint, ISA, and Office Communications Server.

NEXT GENERATION NETWORKING IN WINDOWS VISTA AND WINDOWS "LONGHORN" SERVER

The Next Generation TCP/IP stack in Windows Vista and Windows Server "Longhorn" is a complete redesign of TCP/IP functionality for both Internet Protocol version 4 (IPv4) and Internet Protocol version 6 (IPv6) that meets the connectivity and performance needs of today's varied networking environments and technologies. The Next Generation TCP/IP stack introduces many security, performance, and scalability improvements. After we've examined the new features and benefits of the Next Generation TCP/IP stack we'll discuss how you can prepare your network for IPv6.

WINDOWS DEPLOYMENT SERVICES TECHNICAL OVERVIEW

In this session, we will look at how WDS takes advantage of the Windows Imaging, or WIM, file format. WDS is actually made up of several components to form a unified deployment solution. We will explore each of these components to see how they interact. The management component of WDS is simplified to provide an easy solution for administrators; we will show how using the simplified management with WDS will allow companies to reap these benefits.

IDENTITY AND ACCESS MANAGEMENT

As organizations grow, they tend to accumulate multiple systems and standards for storing, managing, and using digital identities. These systems can include directory services, human resource (HR) databases, financial systems, and custom applications, in addition to Web sites for employees, customers, and partners. The complexities that result from having multiple identity systems and standards generate higher costs, management overhead, and security issues that grow as the size of the environment increases. Implementing an identity and access management solution can help organizations take control of their environments and reduce the complexity.

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WINDOWS CONFERENCE SESSIONS

WHAT'S NEW IN DIRECTORY SERVICES FOR LONGHORN SERVER?

SEAN DEUBY

A lot of work has been done on Active Directory for Longhorn Server with features that give you more flexibility in your directory than you've ever had. In this session, you'll learn about better security for DCs in insecure locations, improved ways to promote and demote DCs, and finally the ability to safely grant administrator rights to operators on some DCs. It is time to start thinking toward your Longhorn future!

IDENTITY MANAGEMENT FUNDAMENTALS

JAN DECLERCQ

This session provides an extensive introduction to identity management. It explains the concept of a digital identity and how it can be used in different contexts. The session pays special attention to the identity management components in the data repository, security, lifecycle, consumable value and management areas. It also introduces identity management-related standards and looks at what solutions Microsoft can offer in this space.

NEW FEATURES IN PKI AND CERTIFICATES FOR LONGHORN AND VISTA

BRIAN KOMAR

Brian Komar, one of the leading "gurus" in Public Key Infrastructure, shares his insights into the changes to PKI and Certificates in Windows Vista and Windows "Longhorn" Server. Learn what you need to know to prepare to implement these technologies, and what they mean to your business.

NETWORK ACCESS PROTECTION IN WINDOWS VISTA AND LONGHORN

STEVE RILEY

Many organizations wish to limit access from and prevent damage caused by rogue, unmanaged machines. This is a challenge because the underlying network protocols were designed primarily to facilitate ease of communications, not to provide robust authentication or permission checking. Many products are becoming available to help control access into a network, based on a variety of existing technologies: DHCP, 802.1X, and IPsec are the most popular. Steve Riley will explore Microsoft's Network Access Protection (NAP) offering, included as part of Windows Vista and Windows "Longhorn" Server.

REIMAGINING THE FILE SHARE: AUTOMATING AND PROVISIONING SECURE BUSINESS DATA SHARES

DAN HOLME

Whether for security, compliance, or manageability, the time has come for IT organizations to reexamine how they manage traditional file shares. This practical, solutions-focused session will present a vision for role-based, provisioned management of shared data folders. You will take away tools and a punch-list of processes that you can adapt to your enterprise's requirements to achieve that vision. Participants in this session are expected to have a solid understanding of access control lists (ACLs) and group management in Active Directory.

DEPLOYING AND MANAGING SMART CARDS WITH CERTIFICATE LIFECYCLE MANAGER

BRIAN KOMAR

Certificate Lifecycle Manager (CLM) allows you to manage software and smart card certificates in your network through the lifetime of the certificates. This session provides an overview of the product, how it integrates into your existing PKI, and identifies how the product will help you in your future certificate deployments.

WINDOWS VISTA SECURITY: THE HIDDEN TRUTH

MARK MINASI

Vista's more than just a pretty face. Its security innards have been ripped out and replaced with a new and almost completely different security engine. But it's not just security geek internals, friends: it's some whole new paradigms. For example, what's going on with those User Access Control dialog boxes behind the scenes? Think you know what's in a SID? Not any more... and get ready for a whole new layer of security, the Mandatory Integrity Controls. MIC's the thing that could make it nearly impossible for you to delete any file in System32, even if you're an administrator. Ah, have we got your attention now? Then don't miss this session!

COMMON ACTIVE DIRECTORY ATTACKS AND HOW TO PROTECT AGAINST THEM

JAN DECLERCQ

This session provides examples of common attacks against Active Directory and also shows how you can protect your enterprise directory against them. The attacks addressed in this presentation include password cracking-, elevation of privilege- and denial-of-service-based attacks.

EVERYTHING NEW IN VISTA AND SERVER EVENTS AND EVENT LOGS

RHONDA LAYFIELD

Join Rhonda Layfield for an in-depth look at the overhauled event logs and eventing subsystems of Vista and Longhorn. Learn how to navigate the logs, consolidate, locate, and interpret events.

WINDOWS VISTA FIREWALL WITH ADVANCED SECURITY: A DEEP-DIVE

DOUG SPINDLER

Administrators may be familiar with the basic firewall found in Vista, which is very similar to the firewall found in Windows XP. In Vista, IT Pros will discover that Microsoft enhanced the functionality of the basic firewall with Windows Firewall with Advanced Security. The Advanced Security Firewall will allow IT Admins to have much more control over firewall settings such as source and destination IP addresses, IP protocol number, source and destination Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ports, interface types, Internet Control Message Protocol (ICMP), and ICMP for IPv6 (ICMPv6). The new advanced security firewall in Vista offers a new level of security and functionality in Vista including the ability to filter inbound and outbound traffic. The new firewall is just one more reason why you will want your users using Vista.

THE FILE SERVER IS DEAD: IMPLEMENTING WINDOWS SHAREPOINT SERVICES DOCUMENT LIBRARIES

DAN HOLME

After a short life of barely a decade, the Windows Server shared folder is dead, or at least on life support. Why? Because the features that we've all been missing—version control, version history, extensibility, and workflow—are now achievable using Windows SharePoint Services document libraries. Learn how to move forward into a new era of document management in this practical introduction to WSS.

DISTRIBUTING YOUR DATA WITH DFS NAMESPACES

SEAN DEUBY

DFS Namespaces is one of the greatest features in Windows Server that's not widely known. A significant improvement over the original Distributed File System in Windows 2000, learn how to use DFS Namespaces to quickly and easily build, manage, and delegate an easy-to-use enterprise virtual folder structure.

MOVING TO 64-BIT WINDOWS

GUIDO GRILLENMEIER

2006 is the year in which 64-bit computing has gone mainstream and its adoption will continue

to grow at fast pace in 2007. The availability of a powerful x64 processor architecture that is backward compatible with the prevailing x86 architecture and the availability of Windows Server x64 editions that leverage this architecture allow a smooth migration path for customers into the new 64-bit world of computing. This session describes the most important things to know about 64-bit and the related Windows Server 2003 and Longhorn operating system versions. It differentiates the two 64-bit architectures supported by Windows (x64 and Itanium) and describes appropriate business cases for leveraging 64-bit today. Special focus will be put on 32-bit compatibility challenges and solutions as well as discussing deployment scenarios for the Windows 64-bit versions and the support of well known server applications when executed on a Windows x64 server operating system.

NAME RESOLUTION 2008 STYLE: DNS, WINS, AND NETBIOS IN LONGHORN

MARK MINASI

Soon we'll have "NT Server 6.1" -Vista's big brother, also known as Server 2007, 2008, or Longhorn. And with that comes improvements in, well, just about everything, including one of Windows' most important pieces of plumbing-name resolution. Yes, you've heard it before, but with Longhorn, it looks as though WINS may really, finally, actually... die. Or not; we'll see. Besides the changes to WINS, the big name resolution story is, of course, DNS. What's new in 2007/8 DNS? And, better, what small features of 2003's DNS might you be missing out on? Come to this session with The Master of Name Resolution, popular speaker and writer Mark Minasi, to find out!

UNDERSTANDING AND TROUBLESHOOTING WINDOWS SERVER 2003 AUTHENTICATION

JAN DECLERCQ

This session focuses on the nuts and bolts of the Kerberos authentication protocol: the basic protocol exchanges, the protocol's strengths and its operation in a single- and multidomain and multiforest environment. The session also addresses the new key features of the Kerberos implementation in Windows Server 2003 and R2: these include the support for protocol transition, constrained delegation, and user-to-user authentication.

DFS-R: THE GOOD, THE BAD, AND THE NON-REPLICATED

RHONDA LAYFIELD

Windows Server 2003 delivers a new mechanism for replicating data in DFS Namespaces called DFS-Replication or DFS-R. DFS Namespaces are incredibly easy to set up and they seem to just

magically replicate from one server to another. But what happens when the magic wears off or when replication fails? In this session, you will learn how to monitor and troubleshoot the new DFS-R to keep the magic alive in your enterprise. Rhonda will share useful command-line tools that configure the client to fail-over to a specific server. She will also dig deep into the replication mechanism to expose the inner workings of cross-file RDC. You'll discover how DFS-R determines what has changed in a file and replicates only the changes-not the entire file-conserving network bandwidth utilization.

CHANGES IN DELEGATING ACTIVE DIRECTORY IN LONGHORN

GUIDO GRILLENMEIER

Active Directory enables administrators to assign permissions to all directory objects at a very granular level. Enterprise environments need to leverage this capability to differentiate who can see or do what in which part of their directories. However, the granularity of permissions in Active Directory can be hugely overwhelming and needs to be applied and managed correctly. This session will recap the challenges of delegating administrative permissions in AD and describe the upcoming changes in Longhorn Security as they are relevant for AD delegation. It will cover typical scenarios for management of Active Directory objects in large enterprises, answering such critical questions as: How can I differentiate between admins that can create objects and those that can manage or delete them? How do I best manage the new options to separate the admin role on Read-Only-DCs? It will also highlight and explain many of the not-so-well-known features around AD delegation that are lingering in your Windows Server 2003 AD infrastructures.

WHAT'S NEW IN WINDOWS VISTA GROUP POLICY?

JEREMY MOSKOWITZ

Short answer: lots. So come hear the essential "what every admin absolutely needs to know" about Windows Vista and Group Policy. Learn why you need a Windows Vista management station. Learn how to get out of burning 5MB per GPO on each DC. Learn about the new things you can do (like power management and USB port management)-only for Windows Vista clients. If you've got even one Windows Vista client that you're going to deploy, you positively must come to this session to learn the ropes from Jeremy Moskowitz, Group Policy MVP.

FRS RIP: DFS-R REPLICATION AND SYSVOL IN WINDOWS SERVER

RHONDA LAYFIELD

Longhorn Server will use DFS-R to replicate your sysvol data. If you have ever had the need to

troubleshoot a sysvol replication failure-maybe a group policy object which dictates your clients security settings failed to replicate to one specific domain controller, so the clients in that site do not receive the security settings; then you know the joys of troubleshooting sysvol replication. Learning the step-by-step process DFS-R uses in the replication process will be a huge help. This session is an in-depth look at DFS-R and the known issues you may possibly run into. This session also contains information that is not yet documented. Learn the process now and be one step ahead of any issues you may encounter!

VIRTUALIZATION STRATEGIES AND TECHNOLOGIES FOR THE ENTERPRISE

ALAN SUGANO

Server and application virtualization in the enterprise environment continues to rise in popularity. As server hardware becomes more powerful, much of the processing power of the server is wasted. Server virtualization allows you to efficiently use the processing power of new servers and the 64-bit platform by consolidating multiple physical servers onto a single virtual server host. We'll examine ESX Server and Microsoft's Hypervisor technologies and how they work with server virtualization. Application virtualization allows you to run applications on workstations without having to install the application on each workstation. This simplifies patch management and significantly reduces the time to roll out new or upgraded applications. Virtualization has the potential to save money, reduce server setup time, provide a flexible test environment, speed up disaster recovery, and still provide high availability.

GOODBYE RIS, HELLO WDS

JEREMY MOSKOWITZ

RIS is dead. Long live, RIS, er, WDS, which replaces RIS. What was RIS? An in-the-box way to deploy scripted, hands-off installs for Windows XP and Windows 2003. What's WDS? The all-new, in-the-box way to deploy scripted, hands-off installs for Windows Vista, Windows XP, and Windows 2003. If you're using RIS today, you absolutely MUST come to this session to know how to upgrade your RIS servers. If you're flirting with Vista installation, learn one unified way to zap out Windows Vista and Windows XP.

REIMAGINING THE MOBILITY AND AGILITY OF USER DATA: FOLDER REDIRECTION, ROAMING PROFILES, AND OFFLINE FILES

DAN HOLME

Windows Server 2003, Vista, and XP offer important functionality to ensure that data is available and secure. But until you start managing the intricacies of the technologies, your organiza-

WINDOWS CONFERENCE SESSIONS

tion's data is difficult to access or take offline, challenging to protect, and intellectual property is exposed. In a worst-case scenario, critical user data is stored only on users' machines and is exposed to complete loss. Or, misguided corporate mandates lead too quickly to full-disk encryption. In this practical session, you will learn best practices for putting the pieces together: folder redirection, user profiles, offline files, encryption, Group Policy, ACLs, and shares. Participants are expected to have a very solid understanding of most or all of these technologies, or be ready to learn them offline. This advanced session prepares you to take away ready-to-implement, useful solutions to corraling, securing, and managing corporate data.

APPLICATION VIRTUALIZATION ALAN SUGANO

End the patch management hell. Application virtualization allows you to run applications without having to install the application on each workstation. This simplifies patch management and significantly reduces the time to roll out new or upgraded applications, because patches are installed once on the application server and not individually on each workstation. We'll take a look at Microsoft's Softgrid technology and how it handles local, remote, and disconnected clients and their applications. This technology also leads to the software as a service directive that many companies see as an industry trend. Application virtualization also ties into disaster recovery because it significantly reduces the prep time for workstation recovery. Application virtualization can reduce patch management headaches, reduce the time to roll out new applications, easy roll back for problematic patches, allows users to run different versions of the same application, and can speed up disaster recovery. See if this technology is a good fit for your company.

DEBUNKING SECURITY MYTHS 2007 STEVE RILEY

Let's see now, if we just tweak this setting here and that setting over there and the other setting ... um, where was that setting again? Sounds familiar, huh? Security tweaks often make you feel good because, after all, you've done something! Alas, tweaks are usually nothing more than pure "security theater," designed more to satisfy poorly written auditing requirements than really making a system more difficult to attack. Steve Riley will expose several common security myths and explain why they provide little (if any) value.

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VOLUME ACTIVATION 2.0 IN VISTA AND LONGHORN SERVER SEAN DEUBY

Think you finally understand Windows licensing? Think again! Every single Vista and Longhorn system requires a Volume Activation infrastructure or they'll come grinding to a halt after you've deployed them. Designing for VA 2.0 will be a critical part of your Vista/Longhorn deployment, so check out this session and be prepared.

IMPACT OF EXCHANGE 2007 ON YOUR ACTIVE DIRECTORY GUIDO GRILLENMEIER

Exchange 2007 is one of those applications that will have quite an impact on your Windows infrastructure once you choose to deploy it. This includes the fact that the deployment of Exchange will force you to implement 64-bit versions of the Windows OS. It will also introduce changes to your Active Directory, including how you delegate the management of messaging-related attributes and how you configure your AD Site Topology. And while there is no immediate dependency to update your Active Directory Domain Controllers to 64-bit Windows as well, various features of Exchange 2007 will have quite an impact on the amount of data stored per user in your Active Directory. So should you upgrade your AD DCs to 64-bit after all? This session will answer this and other questions by describing how the different features in Exchange 2007 could impact your Active Directory.

CRACKING THE DAVISTA CODE: THE BEST THINGS YOU'RE NOT USING IN VISTA MARK MINASI

So you got yourself some powerful PCs and you put Vista on your desktop. Pretty neat, eh? But it might be neater, you know. After all, Vista's basically a complete re-write of Windows. So while everyone's focused on Aero Glass or previous versions, it's easy to miss some of the not-so-obvious but useful things in the latest version of Windows—things like takeown, icacls, or Vista's ability to resize already-formatted partitions without having to reformat them, to name just a few. Join Mark Minasi, author of *Administering Vista Security: the Big Surprises* and *Mastering Windows Vista Business*, in his quest to squeeze the last bit of neat new functionality out of Vista, while perhaps getting a few laughs in the process!

APPLICATION COMPATIBILITY FOR WINDOWS VISTA JEREMY MOSKOWITZ

You've got Vista and now you've got problems. Why? Because you've got applications which work TODAY in XP, but maybe not so much in Vista. What are you going to do? We'll start off with the Application Compatibility Toolkit (which does a lot more than you might think) and show you some tips and tricks to make the applications you already have work better in Vista.

SERVER HIGH AVAILABILITY TECHNOLOGIES ALAN SUGANO

This session will explore high availability solutions from Microsoft and third-party vendors. We will examine lower-end solutions like SQL Server Log Shipping and Database Mirroring that are included with SQL Server 2005, server mirroring from third-party vendors like Neverfail and Doubletake, Microsoft's Server Cluster Solution, SAN options, and how to leverage virtualization technologies, such as VMware's ESX Server with VMotion, as options for high-availability. The discussion will prepare you to determine which high availability solution is the best fit for your company based on your budget and uptime requirements.

WINDOWS SERVER UPDATE SERVICES 3.0 DOUG SPINDLER

Patch management has kept many an IT Professional busy over the years. Keeping a machine patched and up to date is probably one of the least rewarding tasks for an IT Professional. Several years ago, Microsoft released a free patch management server, but few IT Pros actually implemented it. The Patch Management Server or Windows Server Update Services (WSUS) is now on version 3. There is no reason not to have WSUS running where you work. In this session, we are going to show you step-by-step how to install a WSUS server first without Active Directory, and then with Active Directory. Everyone who attends this session will leave knowing how to set up and deploy a WSUS server.

FILE AND DISK ENCRYPTION WITH EFS AND BITLOCKER BRIAN KOMAR

Plug potential data "leaks" by encrypting user systems. Explore the pros and cons of Encrypting File System (EFS) and Windows Vista BitLocker during this practical, technical session.

**Microsoft Office 2007:
Deployment Strategies and Techniques**

The new Microsoft information worker platform is here: Microsoft Office 2007. Far more than just new versions of Word and Excel, Office 2007 is the new groupware client, information worker portal, and collaboration platform for Microsoft technologies. Leveraging server technologies in Windows, Exchange Server, and SharePoint Server, and based upon the advanced client platform technologies in Windows Vista, Office 2007 is simply a must-have new suite. Are you ready for it?

Rely on Office Connections' expert presenters to share inside tips and tricks, and their deep, thorough experience to make Office 2007 deployments easier, more efficient, safer, and more effective. Learn what makes Office 2007 tick, and learn about the features your users will be relying on to do their jobs—and learn how to deliver those features in an effective, enterprise-friendly fashion.

MIGRATING TO SHAREPOINT SERVER 2007

In this session we are going to look at the upgrade and migration process of the new Office SharePoint Server 2007 in conjunction with the newest version of Windows SharePoint Services. Once you have decided to upgrade, you have several options of how to carry out the upgrade process. We are going to explain these upgrade alternatives, along with the advantages and disadvantages of each choice. With each upgrade approach comes additional considerations. This includes how to handle customizations and how to address the upgrade if you use shared services. We are going to address these concerns and give possible solutions. In addition, we will give tips for pre-upgrade and post-upgrade steps and best practices.

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PLANNING FOR AND DEPLOYING SPS 2007

We will introduce the three-tier administration model: central administration, shared services, and site settings. Each component will be explained as well as some common usages. We will also explain various security topics including permissions. Finally, we will look at the deployment options. We will provide some considerations for determining the correct topology to use. We will use scenarios to go into detail of four different topologies. The simplest of these is a single server deployment, and then the options progress to farm options, from small to large.

**NEW TOOLS AND TECHNIQUES FOR DEPLOYING THE OFFICE
2007 SYSTEM**

The 2007 release of the Microsoft Office System offers several new tools to speed and simplify the client deployment process. In this session, you are introduced to the new Setup and Customization technologies (only one tool now instead of all those wizards!) in addition to the new Office Multilingual architecture. This presentation offers a drill down of each tool, guidance for their use, and suggestions for making your deployment a success.

**SECURITY AND SHAREPOINT: FROM SERVICE ACCOUNTS TO
ITEM-LEVEL ACCESS**

In this session we are going to discuss the security methods for Windows SharePoint Services 3.0 and Office SharePoint Server 2007. We will go over different authentication methods, as well as benefits and limitations with these authentication methods. We will discuss the management of permissions and their role with SharePoint groups. We will go over the different permission levels and new permissions available with SharePoint 2007. We will also review access rights that can be used with the SharePoint server. We will discuss the configuration of a Web Farm and review the Web Farm topology, secure topology, secure communication, and security hardening.

**WHAT'S NEW IN THE MICROSOFT OFFICE 2007 SYSTEM?
CLIENT FEATURE WALKTHROUGH**

The innovations in the 2007 Microsoft Office System client applications are significant and range across every aspect of the programs. This session provides an intense high-level tour of these major areas of innovation, including: (1) demonstrations of the most important new capabilities in each of the client applications, (2) insights into migration and coexistence with the new Microsoft Office Open XML file formats, (3) examples of client integration with the new Office SharePoint Server 2007, and (4) a fast-paced overview of the new streamlined Microsoft Office User Interface.

CONFERENCE SESSIONS OFFICE**INTRODUCTION TO KNOWLEDGE
NETWORK**

DOUGLAS RYAN VANBENTHUYSEN
Learn how Knowledge Network (KN) is positioned within the world of social and professional networking. This session will review basic KN functionality, examine how to address privacy concerns, and suggest some advanced KN uses.

WHAT'S NEW IN ACCESS 2007?

ALISON BALTER
Access 2007 includes a plethora of new features. This session provides the attendee with a tour of Access 2007. The tour will begin with an explo-

ration of the many new form and report features that facilitate the rapid development of new and existing forms and reports. Other topics covered in this session include what's new with tables, the new and improved embedded macros, and what's new with importing and exporting. After attending this session you will be compelled to include Access 2007 as both an end-user and developer tool within your organization.

CONTENT TYPES IN SHAREPOINT

DOUGLAS RYAN VANBENTHUYSEN
Explore the new SharePoint content type feature. This session will explain the value of content types

and show how to create and associate multiple content types with a single document library.

**BUILDING INFOPATH FORMS THAT RUN
AS BOTH RICH CLIENT AND BROWSER
APPLICATIONS**

DAVID GERHARDT
Examine the new support for server forms in Office InfoPath 2007. This session will review new InfoPath features but will focus on the "design once" concept, which allows for a single form template to be used for both rich-client and browser applications.

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WHAT'S NEW IN ACCESS 2007 SECURITY?

ALISON BALTER

Access 2007 security is extremely different than that of its predecessors. For example, Access 2007 security eliminates user-level security. These changes to security have major implications on the applications that employees in the organization build. This session covers new topics such as using an Access 2007 database in a trusted location, packaging, signing, and distributing an Access 2007 database, and encrypting an Access 2007 database. It also covers how security works with databases created in other versions of Access. Finally, it covers the process of running unsafe expressions. All of these topics are vital for securing and successfully working with an Access 2007 database.

USING SHAREPOINT DESIGNER AS A WORKFLOW TOOL

DOUGLAS RYAN VANBENTHUYSEN

Examine the workflow capabilities of Office SharePoint Designer 2007. This session will explore the conditional logic that you can build with SharePoint Designer workflows and review the actions that can be performed against SharePoint list items.

GROOVE 2007: GETTING PEOPLE TO WORK TOGETHER

DOUG SPINDLER

Have you ever worked as a team member in a workgroup in which documents were e-mailed to the members of the team for review? If so you will quickly realize that tracking all of the changes and knowing which team member has the most up-to-date document is quite confusing. This is where Groove fits in. In this session, we will take a look at real-world solutions where we have used Groove Service and Groove Server to provide document management solutions for team members from company workgroups. We will show you how large corporations are using Groove Server and how mid-size law firms, advertising agencies, and non-profits are using Groove Service to work together on projects.

LEVERAGING ONE OF SHAREPOINT'S FORGOTTEN GEMS, PART ONE: HARNESS THE POWER OF CUSTOM LISTS

CA CALLAHAN

WSS is often simply written off as a document sharing tool. But *au contraire*, it can be much more than that. Come see how to unlock the hidden database potential of WSS, creating custom

lists that allow you to enable your users to access, enter, and display shared data (like inventory, sales, and more). Watch how WSS can become a data management tool with built-in security capabilities, reporting, and more.

LEVERAGING ONE OF SHAREPOINT'S FORGOTTEN GEMS, PART TWO: HARNESS THE REPORTING POWER OF CUSTOM VIEWS

CA CALLAHAN

Every list, table, or database is simply comprised of records of data. And although that's nice, on its own it's not that nifty. It's not enough to simply add data, and it's not enough to simply have it stored somewhere. You have to be able to see it, to query it, to "use" it. And that's what SharePoint lists and their views are all about. Come see how to use the power of view customization and learn a whole new way of using SharePoint.

LEVERAGING ONE OF SHAREPOINT'S FORGOTTEN GEMS, PART THREE: HARNESS THE POWER OF THE SIMPLE, BUILT-IN, LIST VIEW WEB PARTS

CA CALLAHAN

Web Parts are usually considered for developers only, but that's just not true. Come see the third and final installment of the forgotten gems series, and learn how to use Web Parts to your advantage. Don't just fill your home page with stock market tickers and sports stats; learn how to leverage custom lists and their views to make your site's home page more relevant and useful (without becoming a developer).

END-TO-END SOLUTIONS WITH THE 2007 RELEASE: DEVELOPING FOR IT PROS

DAVID GERHARDT

Review an end-to-end solution for a sample building permit application process. This session will show how Office InfoPath 2007 and Office SharePoint Designer 2007 were used together to build a solution that needed only a minimal amount of custom code.

FRONT-ENDING SHAREPOINT WITH ACCESS

ALISON BALTER

Access 2007 is tightly integrated with SharePoint. This session provides the attendee with everything that they need to know about working with Access 2007 and SharePoint. Topics covered include why SharePoint and Access 2007 are important tools within the organization, how to move your database to a SharePoint site, and how

to open and work with SharePoint lists from within Access 2007. It will also cover how to integrate with the SharePoint workflow, how to work with SharePoint services offline, and how to map Access data to SharePoint data. All of these topics are necessary when integrating Access 2007 and SharePoint.

TEMPLATES AND CUSTOM STYLES WITH OFFICE WORD 2007

DOUGLAS RYAN VANBENTHUYSEN

Explore the use of custom styles in an Office Word 2007 template, including the interaction between themes, templates, and styles. You will learn convenient ways of applying styles, which includes assigning keyboard shortcuts, placing styles in the ribbon, and applying custom styles to custom themes.

SHARING INFORMATION WITH MICROSOFT OFFICE EXCEL AND EXCEL SERVICES 2007

BOB MIXON

Excel Services, provided by Microsoft Office SharePoint Server 2007, gives users the ability to publish and share Excel workbooks in a central location. Once published, a user can access all or part of those workbooks through their browser using Microsoft Office Excel Web Access. In this session, I will demonstrate how to publish Excel workbooks to Excel Services and utilize various features such as, limiting what sheets and/or cell ranges will be displayed. In addition, I will demonstrate how to use browser-based parameters, giving users the ability to plug in specific cell data.

MICROSOFT OFFICE FORMS SERVER 2007: DELIVERING FORMS WITHOUT CODE

BOB MIXON

In the past, delivering complex browser-based forms to our customers required the experience of an ASP.NET developer. With the combined features of Microsoft Office InfoPath 2007 and Microsoft Office Forms Server 2007, many of these efforts can be pushed out to the line of business. This session will demonstrate the ease of implementing browser-based forms that have rich features such as field-level validation—all without writing a single line of code. In addition, I will demonstrate the means by which these forms can be integrated with Microsoft Office SharePoint for data storage.

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9AM - 4PM • PRE-CONFERENCE WORKSHOP • EXCHANGE TRACK

EPR301: MICROSOFT EXCHANGE SERVER 2007 HANDS-ON LABS PETER O'DOWD

Come take a six-hour guided tour of Exchange Server 2007 and see for yourself the next evolution of the world's most powerful messaging system. Experience the new Management Console, the five new server roles, e-mail policy enforcement and compliance, powerful new scripting tool, new architecture, new high availability and disaster recovery features, new mailbox features, and methods for migrating from earlier versions of Exchange. Sign up fast, seating is limited.

9AM - 4PM • PRE-CONFERENCE WORKSHOP • WINDOWS TRACK

WPR201: REIMAGINING THE IMAGE: DEPLOYING, REPAIRING, REPLACING, AND UPDATING WINDOWS XP AND WINDOWS VISTA CLIENT

DAN HOLME

In this fast-paced, intermediate to advanced session, Dan will share with you best practices and real-world insight into the design, deployment, and maintenance of Windows XP and Vista clients. You will learn new, 21st century approaches to creating perfect (and perfectly supportable) corporate and divisional desktop and laptop images that can be supported effectively with application, security patch, and service pack rollouts into the future. You will take away a deployment methodology that works, and a solid understanding of its functionality so that you can further refine the methodology to apply to your enterprise. Once you leverage the new capabilities of XP, Vista, and Windows Server, your enterprise will be able to roll out and troubleshoot systems faster and more confidently than ever before. Some of Dan's clients have cut out the



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PRE-CONFERENCE WORKSHOPS

costs of vendor-installed images after learning how to better manage image creation and deployment internally.

Topics will include Remote Installation Services, Windows Deployment Services, ImageX, Windows PE, and powerful methods for scripted deployment of the operating system and applications (including Microsoft Office). Participants should have familiarity with deployment technologies such as unattended answer files, Group Policy, Sysprep, and disk duplication.

9AM - 12PM • PRE-CONFERENCE WORKSHOP • WINDOWS TRACK

WPR202: VBSCRIPT BASIC TRAINING

DON JONES

A crash course in administering Windows with VBScript! Think VBScript is dead? Think again: Even Microsoft is using it in Windows Server 2007/2008; for many jobs, VBScript is still the right tool. Scripting guru Don Jones, author of *Managing Windows with VBScript and WMI* and co-author of *Advanced VBScript for Windows Administrators*, teaches you everything you need to know about VBScript, Windows Management Instrumentation (WMI), and Active Directory Services Interface (ADSI)—with no prior experience required. You'll even learn Don's tips and tricks for scripting faster and more effectively, including great tips on debugging and bug prevention.

1PM - 4PM • PRE-CONFERENCE WORKSHOP • WINDOWS TRACK

WPR203: WINDOWS POWERSHELL BASIC TRAINING

DON JONES

Learn the basics of Microsoft's newest tool for administrative automation: Windows PowerShell. Scripting guru Don Jones, co-author of *Microsoft Windows PowerShell: TFM*, and a half-dozen other books on scripting

and automation, introduces you to Windows PowerShell's interactive capabilities and its scripting language. You'll learn to use cmdlets, write basic scripts, and more. More importantly, you'll be able to perform real-world tasks like query Windows Management Instrumentation, work with Active Directory objects, manage computers' local security accounts, manage services, processes, and security, work with the registry, and much more. Bring a laptop with Windows PowerShell installed and be prepared to follow along as Don whizzes through the basics of this exciting new shell. Perfect if you're looking at Exchange Server 2007, which has its administrative functionality built upon Windows PowerShell!

9AM - 4PM • PRE-CONFERENCE WORKSHOP • OFFICE TRACK

OPR202: WINDOWS SHAREPOINT SERVICES DEMYSTIFIED

CA CALLAHAN

An IT professional's guide on how to install, set up, and administer WSS 3.0 with an overview of what it is and what it does. Includes topics such as what Windows Sharepoint Services are and how they differ from MOSS; what WSS does to the server under the hood; dos, don'ts, and best practices from an administrator's point of view; and what the heck a document library actually is. Learn what to consider when installing WSS; how to use preexisting libraries, lists, and other out-of-the-box goodies; how to create sub-sites (and why); how to manage users, rights, and configure settings that any administrator needs to know. Attendees will come away with a working knowledge of Windows Sharepoint Services and what to watch out for when deploying it in their business environment.



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POST-CONFERENCE WORKSHOPS

9AM - 4PM • POST-CONFERENCE WORKSHOP • EXCHANGE TRACK

EPS301: EXCHANGE 2007 FOR EXCHANGE 2003 ADMINISTRATORS

JIM MCBEE

There has been a lot of hype and media attention surrounding Exchange 2007. The Exchange community has gotten their first look at Exchange 2007 in the summer of 2006. But what does the imminent release of Exchange 2007 mean to you as an Exchange 2003 administrator and your users? 64-bit hardware support, a revamped user interface through a new graphical user interface or Monad scripts, continuous replication, resource mailbox support, Edge services, improved mobile support, and unified messaging will all affect the way we manage our Exchange organizations and the services we provide to our user community. Topics in this workshop include:

- Determining a migration / upgrade path to Exchange 2007 from your current Exchange environment
- Implementing e-mail lifecycle management
- Implementing Outlook 2007 using the auto-discovery service
- Reviewing the new Exchange server roles
- Using new features for virus protection, spam reduction, and content filtering
- Using the new Exchange Management Console and Monad scriptlets
- Using local continuous replication to improve availability
- Implementing Exchange Edge services
- Reviewing new unified messaging features
- Taking advantage of resource mailboxes and the scheduling assistant

9AM - 4PM • POST-CONFERENCE WORKSHOP • WINDOWS TRACK

WPS301: REIMAGINING IT ADMINISTRATION: ROLE-BASED MANAGEMENT, PROVISIONING, AND ACCELERATED ADMINISTRATION

DAN HOLME

Find out why this workshop is consistently rated as a "best of breed" session, delivered as a capstone to your Windows Connections experience. From his work with thousands of IT professionals, from the CIOs of Fortune companies to front-line support professionals, Dan Holme has amassed a wealth of experience and expertise—solutions which enable you to deliver real-world best practices within the constraints of real-world budgets and technologies.

ROLE-BASED MANAGEMENT: You will discover how to implement role-based management, in which users are defined by their business roles and where resource access and configuration are instantly, accurately, and auditably applied. Empower your enterprise to enable a documented, auditable structure for resource security, asset management, and more.

PROVISIONING: You have the technology. Your business has processes. But too commonly they are not aligned. Learn how concepts of provisioning can enable you to support business processes through easy-to-implement solutions for scenarios including user management, new and replaced computers, and group membership tracking, to name a few.

ACCELERATED ADMINISTRATION: Learn the tricks that Dan has developed with enterprises large and small to facilitate administration and security. Dan will focus on creating highly customized and effective MMC consoles, scripts, intranet pages, and toolsets utilizing the native Windows administrative tools, support tools, and Resource Kit and free third-party utilities.

9AM - 4PM • POST-CONFERENCE WORKSHOP • WINDOWS TRACK

WPS302: CREATE A TEST ENVIRONMENT, VIRTUALLY AND INEXPENSIVELY (HANDS ON)

RHONDA LAYFIELD

Have you ever wanted a test environment, but didn't know where or how to start? Purchasing new hardware to sacrifice to a test network can be pretty costly, not to mention the amount of time it takes to build and maintain the test environment. While this task can seem overwhelming, it doesn't have to be. This post-conference workshop will give you hands-on experience in creating your very own test environment that mirrors your production environment with built-in disaster recovery! Now think about that for a second—regardless of the technology you require in your test lab, be it SQL, Exchange, Active Directory, or a development test environment, these step-by-step labs will work for all, and you get to perform them live.

Participants will be required to bring their own laptop (hardware requirements will be posted online), onto which they will install the free VMWare Server product, which will be used to create your own virtual test environment live, in class. You will also be able to take these step-by-step labs back to work with you and create your own virtual test environment, no muss no fuss, and no drain on your budget!!

9AM - 4PM • POST-CONFERENCE WORKSHOP • OFFICE TRACK

OPS201: MICROSOFT OFFICE SHAREPOINT SERVER 2007 (MOSS) WEB CONTENT MANAGEMENT

BOB MIXON

Microsoft Office SharePoint Server 2007 has included a very robust feature set called Web Content Management (WCM). In this full-day workshop you will learn how to plan for, design, and deliver a highly scalable Web Content Management Solution. You may have heard about Web Content Management, but what does it "really" do and what value does it add to my customers? This workshop will provide the details of what WCM is and why it is important. It will cover the high-level feature set that we will dive in to throughout the rest of our day. The most important step in any solution is to have a workable plan; without this, the risk of failure is very high. In this workshop we'll describe best practices for planning and documenting the design of your content management solution. In addition, you'll see a demonstration of how to create custom column types, content types, and associated page layouts.

Another exciting feature of Microsoft Office 2007 is workflow; without it, Web Content Management couldn't exist. This part of the workshop will describe and provide demonstrations of both simple and complex workflow scenarios that will be common in your workplace. You'll learn how these workflows can be attached to your custom content types and set for manual or automatic initiation. Once you have your Content Management solution in place, you will need to educate your content authors. With the new features found in Microsoft Office 2007, content authoring and publishing couldn't be easier. You'll see demonstrations of how content can be authored using Microsoft Word or the browser. In addition, I will show the role workflow plays during the authoring and publication process.

To wrap up the day, you'll learn various ways of aggregating content and displaying it on your site using the Content Query Web Part (CQWP). The Content Query Web Part provides a wealth of features, many of which are misunderstood. You'll see a demonstration of how to configure and customize this Web Part to get the results you are looking for.

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- ☐ MONDAY, APRIL 2, 2007 Troubleshooting Disaster Recovery with Exchange Server 2003 (full day)
- ☐ TUESDAY, APRIL 3, 2007 Troubleshooting Message Flow in Exchange Server 2003 (full day)
- ☐ WEDNESDAY, APRIL 4, 2007 Troubleshooting Performance in Exchange Server 2003 (full day)
- ☐ MONDAY, APRIL 2, 2007 VBScript Master Course (bring your own laptop)
- ☐ TUESDAY, APRIL 3, 2007 PowerShell Master Course (bring your own laptop)

PRE-CONFERENCE WORKSHOPS SUNDAY, APRIL 1, 2007 LUNCH IS INCLUDED WITH FULL DAY WORKSHOPS.

- ☐ 9:00AM - 4:00PM Microsoft Exchange Server 2007 Hands-on Labs O'DOWD\$399
- ☐ 9:00AM - 4:00PM Reimagining the Image: Deploying, Repairing, Replacing,
and Updating Windows XP and Windows Vista Client HOLME\$399
- ☐ 9:00AM - 12:00PM VBScript Basic Training JONES.....\$199
- ☐ 1:00PM - 4:00PM Windows PowerShell Basic Training (bring your own laptop) JONES.....\$199
- ☐ 9:00AM - 4:00PM Windows SharePoint Services Demystified CALLAHAN\$399

POST-CONFERENCE WORKSHOPS THURSDAY, APRIL 5, 2007 LUNCH IS INCLUDED WITH FULL DAY WORKSHOPS.

- ☐ 9:00AM - 4:00PM Exchange 2007 for Exchange 2003 Administrators MCBEE.....\$399
- ☐ 9:00AM - 4:00PM Reimagining IT Administration: Role-Based Management, Provisioning,
and Accelerated Administration HOLME\$399
- ☐ 9:00AM - 4:00PM Create a Test Environment, Virtually and Inexpensively
(Hands-on - bring your own laptop) LAYFIELD\$399
- ☐ 9:00AM - 4:00PM Microsoft Office SharePoint Server 2007 (MOSS)
Web Content Management MIXON\$399

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to the Hub Transport server in its local site. That Hub Transport server attempts to find the most efficient path for the message, beginning by computing the cost of all possible routings and using the resulting list of routing costs to attempt the least expensive connection directly to the target site's Hub Transport server. The routing engine prefers direct connections whenever possible, so if two routes with equal costs exist, the routing engine will choose the one with the shortest number of hops.

Because sites and site links were originally designed for finding local services, Windows doesn't have a concept of a service-related cost for sites or site links: The cost associated with a link is essentially fixed. However, you can set an Exchange-specific cost on site links by using the Set-AdSiteLink Exchange Management Shell cmdlet. If you specify an explicit

Exchange cost for a site link, Exchange uses the cost for routing-cost calculations. However, other Windows services (notably AD replication) ignore the Exchange-specific cost.

The Exchange cost comes into play in scenarios where the destination Hub Transport server isn't directly reachable, which can happen for two reasons:

- The link to the target site is down. Consider three sites, A, B, and C, where each site is connected to the other two. Usually a message can go directly from A to C, but if the A to C link is down, the Hub Transport server can route the message A to B to C to deliver it.
- You've set up a hub site, which is essentially the equivalent of an Exchange Server 5.5-style hub-and-spoke topology. All messages go from the originating Hub Transport

server to the hub site, then to their destination. The Exchange 2007 documentation is pretty clear about the utility of this topology; it warns that hub sites "should only be used when it is required by the network topology, such as when firewalls exist between Active Directory sites and prevent direct relay of Simple Mail Transfer Protocol (SMTP) communication" (<http://technet.microsoft.com/en-us/library/0f697cee-bcaa-4c69-b80c-7a2afd1817d2.aspx>). To establish a hub site, you have to use the Set-AdSite cmdlet through Exchange Management Shell.

Preparing for Sharing

When you add the first Exchange 2007 server to an existing Exchange organization, Exchange

IT Pro Hero

Q: But Microsoft isn't saying that DAS is the preferred storage medium for Exchange 2007—just that it's an option, right?

A: Right. There was some controversy in IT about switching from a SAN to the cheaper disks because of our users' expectations of high availability. But because we decided to increase mailbox size from 200MB to 2GB, for compliance as well as dogfooding reasons, we needed to back up 10 times the amount of data that we were backing up in Exchange 2003. Ironically, in the middle of this controversy, we lost a SAN array with 8,000 users on it. It completely died, and we had to reinstall Exchange and recover 800 200MB mailboxes. That was an exceptionally painful exercise. And the Exchange development team guys told us, "If you'd been using CCR, it would have been a two-minute outage, not a two-day outage." They were right. That's really what helped us turn the corner and embrace this scenario. It was an unfortunate event but exactly what we needed.

Another challenge we had was that when we switched to 2GB mailboxes, we also told users, "no more PSTs." That decision caused probably the biggest backlash that we've ever seen. But when we offered to let the users who wanted PSTs out of the pilot program, they said, "no way—I love my 2GB mailbox!" We use the new records management features to set limits and actions to take on different folders, depending on the classification of the mail—for example, whether it needs to be archived or deleted after a certain period of time. With 2GB, users have essentially the experience of a bottomless mailbox.

Q: During the course of the dogfooding, what Exchange 2007 features did IT staff most appreciate?

A: The advances with Windows PowerShell (aka Exchange Management

Shell) and the ability to do so much via the command line were a huge win for us from an administrative perspective. When we heard about Monad (the prerelease version of PowerShell) initially, everybody in IT thought that this new way of doing administration would be a headache. But after we started using PowerShell, we absolutely loved it.

I think PowerShell represents tremendous potential for the user community because it provides a consistent way of doing things. I think there will be a community of sharing scripts, cmdlets, and knowledge, so that people won't have to reinvent processes for automated ways of moving mailboxes or certain sorts of tasks.

Q: What's an example of a problem that would be easier for you to identify using PowerShell?

A: The state of services and databases is one. Another example: One of the more problematic roles for us, because it was brand new, was the Edge server role. When troubleshooting issues with the Edge server, we found that our traditional methods—using Performance Monitor or Queue Viewer through Exchange System Manager (ESM)—were less accurate than we would have hoped. But we were able to find the answers through PowerShell; it gave us a more granular view of what was happening on the Edge server.

Q: What's your advice to your IT peers in other organizations to help them get over their fear of PowerShell?

A: Actually, all I think they need to do is take a look at it. After less than 30 minutes of playing with PowerShell, our IT folks were saying, "Wow, this is incredibly powerful and extremely beneficial."

InstantDoc ID 94992

Anne Grubb (agrubb@windowsitpro.com) is a senior editor for *Windows IT Pro*, *SQL Server Magazine*, and *Exchange & Outlook Pro VIP*.

2007 setup asks you to pick a target bridgehead server in the existing organization. The server you pick is used to establish an RGC, so plan ahead to make sure that you're selecting a server in a routing group with good connectivity. All messages you send between mailboxes on the Exchange 2007 server and the existing servers will pass over this connector. All Exchange 2007 servers go into the Exchange 2007-specific DWBGZMFD01QNBJR routing group; you can't put them anywhere else. This can lead to undesirable routing because all messages between the Exchange 2007 and legacy Exchange parts of your organization have to traverse that connector, no matter where the servers are physically located. To work around this problem, Microsoft recommends that you create additional RGCs between DWBGZMFD01QNBJR and target routing groups; to do so, you'll use the New-RoutingGroupConnector Exchange Management Shell cmdlet.

You also have to consider link state updates from Exchange 2003 and Exchange 2000 routing groups. If you have only one RGC, link state updates won't be a problem. However, if you have multiple connectors, link state changes will be propagated only among your Exchange 2003 and Exchange 2000 servers. The Exchange 2007 Hub Transport role doesn't understand link state updates and won't accept them when offered by legacy servers, so the Hub Transport servers might attempt to route messages over connectors that are currently down. This can lead to slow delivery times at best or message loops at worst. Microsoft recommends setting the SuppressStateChanges registry subkey (described in detail at <http://www.microsoft.com/downloads/details.aspx?familyID=62fb1297-4c6b-4d84-84cc-060989f2f305>) to turn off connector-status change messages. When you do so, Exchange 2003 and Exchange 2000 will essentially act like Exchange 2007 in that they'll rely on only route-cost information and not route-status information when making routing decisions.

When you move mailboxes from Exchange 2003 and Exchange 2000 servers to Exchange 2007, you'll need to decommission the older servers; as you remove them, they'll be removed from the routing topology. However, you'll need to remove RGCs manually as you remove individual legacy Exchange routing groups, as well as remove any RGCs between your Exchange 2007 pseudo-routing group and the rest of your organization. This is a straightforward process, but it requires you to

watch message flow carefully to ensure that you're not stranding messages on a server or preventing flow from other servers that may depend on a particular connector or bridgehead.

A Better System

Message routing has changed significantly in Exchange 2007 as Microsoft added the Hub

Transport server role and eliminated routing groups altogether, but the changes offer a better system for moving messages. However, efficient message flow will depend on having a proper AD site design. If you're not confident that your site topology maps correctly to the layout of your network, you should begin correcting it now to smooth your Exchange 2007 upgrade process.



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SECURE CONNECT ON THE ROAD

BY MARK
JOSEPH EDWARDS

SOLUTIONS SNAPSHOT

PROBLEM:

You need a way to protect the network communications of client computers when those clients are using untrusted networks.

SOLUTION:

Use OpenSSH and Squid for Windows to build a quick and simple VPN.

WHAT YOU NEED:

OpenSSH, Squid for Windows, Kraken Config, server computer, client computer

DIFFICULTY:



Connecting to the Internet while traveling can sometimes be dangerous, especially over open, unencrypted networks, such as those found at hotels, coffee shops, conventions, and sometimes even at client or business partner sites.

To give you an example, at the 2006 DEFCON 14 hacker convention in Las Vegas, hackers sniffed the public wireless network airwaves to discover all sorts of information from people who didn't bother to encrypt their network traffic. The hackers then posted those details on a "Wall of Shame" for everyone to see. As a result, a lot of people's sensitive information, including banking and business information, was compromised.

You can, of course, use a VPN to establish secure connectivity when you're mobile so that you don't fall victim to snoops. If you want a lightweight VPN solution that's easier to install and manage than other solutions, check out the OpenSSH VPN tool and the Squid for Windows proxy server (formerly SquidNT), both of which are free.

Open SSH and Squid for Windows

OpenSSH is based on the popular Secure Shell (SSH) technology, and Squid for Windows is based on the popular Squid proxy server, both of which were originally developed for UNIX and Linux platforms. OpenSSH and Squid for Windows are versions of those tools, which have been designed specifically to run on Windows platforms. One major benefit of using these tools is their simplicity and portability. They're easy to install, require very little configuration

and management, and the solution works on nearly any client OS today, which means you can install this solution on two desktops if you want, instead of needing a dedicated server platform. These benefits are, of course, not the case with other proprietary solutions. Note that any client software you use must be able to support the use of a proxy server to communicate over this VPN solution. If you want to implement this solution on another platform, such as Linux, BSD, or OS X, then simply obtain OpenSSH and Squid for those platforms and use the same principles that I provide in this article.

I'll show you how to build a VPN server and client, collectively referred to in this case as "VPN," step by step, by using the OpenSSH toolkit and Squid for Windows proxy server, which you can run on nearly any Windows system. This solution will let you move all your mobile-client traffic over an encrypted connection through the VPN and then out to the Internet or to systems on the network on which your VPN server resides.

An added benefit of this solution is that you can use it to remotely manage the server that runs OpenSSH or any systems that you have access to through the OpenSSH server (e.g., other systems on the same network). This is possible because when you connect to the OpenSSH server, you get a command-line prompt, which is actually a remote command shell running on the OpenSSH server. In that command shell, you can run any Windows commands or command-line tools that you have permission to access under the account with which you logged on. So if you want to manage other systems by using the OpenSSH connection, plan ahead by copying any tools that you might need onto

Use OpenSSH and Squid to create a VPN

IVITY

the server before you head out on the road, or make sure you have access to other remote servers where any required tools might reside. If you need to manage other systems over the OpenSSH connection, you should probably use domain authentication (which Step 1 describes) so that you have proper permissions on those other systems.

How It Works

The OpenSSH/Squid for Windows solution is relatively simple. You install OpenSSH on a server and on any clients. You install Squid for Windows only on the server system. On the client side, OpenSSH connects to your OpenSSH server and opens a separate port on the client computer to listen for client traffic on the *localhost* address. You configure your client applications (Web browser, email client, chat client) to use a proxy server with the *localhost* address. The client applications then send traffic to the OpenSSH *localhost* port, which routes the traffic to the OpenSSH server over the encrypted connection. The OpenSSH server then receives that traffic and routes it to Squid for Windows, which in turn sends that traffic on to its destination. Although this might sound a bit complex, once you try it you'll see that it's very easy to understand and implement.

To implement this solution, you'll need one computer to use as the VPN server and at least one mobile computer to use as the VPN client. OpenSSH and Squid for Windows don't require much memory or CPU time, so you can easily run both on nearly any server that mobile computers can reach from the Internet. You could also build the VPN server on a computer on your home network, and if your company policy allows for it, build on the company network instead. Be sure to read this solution in its entirety before you implement it.

Step 1: Install and Configure OpenSSH on the Server

To get started, download a copy of OpenSSH (<http://sshwindows.sourceforge.net/download>) and install it on your server by using the installation wizard. This is a straightforward process and doesn't require any special knowledge.

After you install OpenSSH, I recommend that you edit the default configuration so that OpenSSH runs on some port other than the default port 22. Running on a port other than 22 makes it harder for intruders to discover the OpenSSH server by performing a port scan of the machine. Intruders expect an SSH server to listen on port 22, so if you move it to another port, then they'll have a harder time figuring out what service is listening on that port. To change the default port, go to your OpenSSH installation directory and navigate to the *etc* subdirectory. Edit the *sshd_config* file and adjust the port parameter to an unused port number on your system. In this article, I use port 422. If you're unsure what ports might be available, use the *netstat -an* command, to view all open ports. Any port not in the list could probably be used for OpenSSH. Just be sure to remember the port number because you'll need it to log on to the OpenSSH server later.

Then you must also create a group file and a *passwd* file, both of which determine who is allowed to log on to the OpenSSH server. The group file contains a list of groups extracted from the local system's Windows registry, which OpenSSH uses to map permissions similar to the way Windows does. The *passwd* file contains a list of users, also extracted from the local system's registry, who are allowed to log on to the OpenSSH server.

To create the group file, change to the OpenSSH *bin* subdirectory and type the following command:

```
mkgroup -l >> ..\etc\group
```

SOLUTIONS SNAPSHOT

SOLUTION STEPS:

1. Install and configure OpenSSH on the server.
2. Install and configure Squid for Windows using Kraken Config.
3. Install OpenSSH on the client computer.
4. Fire up the server and connect.
5. Configure your client applications.

This command dumps the local registry's groups into the group file in the etc subdirectory.

Next, use the following command to create the passwd file that authorizes users to log on to the OpenSSH server:

```
mkpasswd -l -u XYZ >>
    ..\etc\passwd
```

where XYZ is your local logon name. This command dumps the XYZ user's credentials from the local registry into the etc\passwd file. Do this for each user for whom you want to allow access.

If you want to use Windows domain accounts for authentication, use the same two commands with a -d switch instead of the -l switch and specify the appropriate Windows domain. The mkgroup command will contact your PDC for the specified domain to obtain the list of groups and accounts. Creating these two files is pretty simple, but see the OpenSSH documentation if you need more help.

If the username and password logon method isn't strong enough authentication for your needs, you can use even stronger authentication by implementing encryption keys on your OpenSSH installations. I don't have room to cover that subject here, but you can find step-by-step instructions in the key_authentication.txt file located in OpenSSH's docs\OpenSSH directory. It's relatively simple to accomplish.

Note that OpenSSH installs itself as a Windows service that automatically starts each time the system is booted. If you don't want the service to start automatically, you need to adjust the service properties to require a manual start. On Windows Server 2003, Windows XP, and Windows 2000 systems, you can adjust the service properties by using the Computer Management tool in Administrative Tools. Go to Services and Applications\Services, right-click OpenSSH service, select Properties, then adjust the startup mode accordingly.

Step 2: Install and Configure Squid for Windows

Next, install Squid for Windows (<http://www.serassio.it/SquidNT.htm>) on your server system (e.g., not your mobile computer). To configure Squid for Windows, I recommend

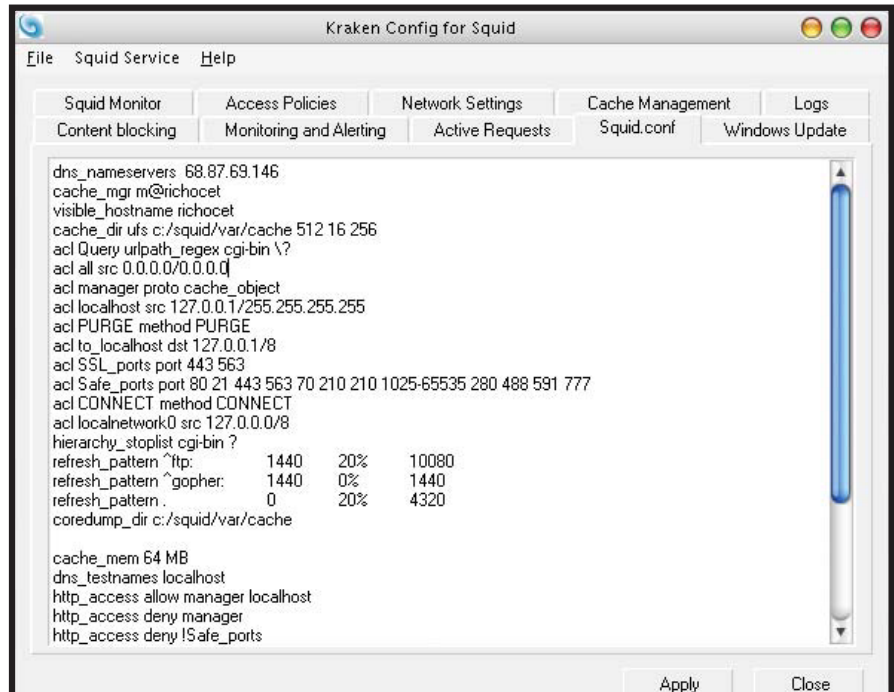


Figure 1: Squid configuration file in Kraken Config for Squid

that you download and use Kraken Config for Squid (<http://www.krakenreports.com/index.php?subPage=krakenConfig>), which greatly simplifies configuring the proxy server. Kraken Config has a simple wizard that asks you for some basic parameters, including the local host name, disk cache size and the amount of memory Squid is allowed to use, allowed network addresses, and a few other simple details. The tool costs only \$10 and, in my opinion, it's worth every penny. You can test-drive it free for 30 days, after which the monitoring features will become disabled, but even so, your Squid for Windows configuration will continue working.

After you run the Kraken Config tool, edit the squid.conf file (in Squid for Windows's etc subdirectory) to add a line such as the following:

```
http_port 127.0.0.1:3128
```

This tells Squid to listen only on the localhost address (127.0.0.1) on port 3128. It's important that you add this line with the http_port directive. If you don't, Squid for Windows will use the system's real IP address, which will cause Squid for Windows to be exposed to your local network and possibly the Internet, where others might be able to connect to it. Note that

you can choose any unused port number you prefer, but you need to remember this port number because you'll need to connect to it in Step 4.

Incidentally, another benefit of using Kraken Config is that when you start the Squid for Windows service, Kraken Config's dialog window, which Figure 1 shows, will appear so that you can monitor Squid for Windows and make configuration adjustments.

Like OpenSSH, Squid for Windows installs itself as a Windows service that automatically starts each time the system is booted. You'll need to adjust the service properties if you require a manual start. To do so, follow the same instructions as described near the end of Step 1.

Step 3: Install OpenSSH on the Client Computer

Next, you need to install a copy of OpenSSH on your mobile computer system. Because you're using your mobile computer as a client and not as an OpenSSH server, you don't need to configure anything after installing the OpenSSH software on your mobile computer. Just remember where you installed the software, so you can access the ssh command-line tool to connect to

An added benefit of this solution is that you can use it to **remotely manage the server** that runs OpenSSH or any systems that you have access to through the OpenSSH server.

your newly built OpenSSH server.

Again, remember that OpenSSH installs itself as a service set to start automatically. It's probably a good idea to set the service to start manually on your client system, unless you're sure that you'll use it frequently.

Step 4: Fire Up the Server and Connect

Now you're ready to start the OpenSSH and Squid for Windows services (if they aren't already started) on the server and test client connectivity. After you start the server services, on your mobile workstation, open a command shell and navigate to the bin subdirectory of your OpenSSH installation, in which you'll find the ssh command-line tool. Log on to your OpenSSH server by using the following command:

```
ssh -p 422 -L 3127:127.0.0.1:3128
XYZ@IP
```

The -p 422 parameter tells the ssh client to connect to the OpenSSH server on port 422 (or the port number you defined in the OpenSSH configuration in Step 1). The -L parameter causes the ssh client to open port 3127 on the local machine and forward traffic sent to that

port to port 3128 on the remote system, which is your Squid for Windows proxy server's port. If you used a different port number for Squid for Windows, be sure you adjust the command appropriately. XYZ is your username, and IP is the IP address of your OpenSSH server.

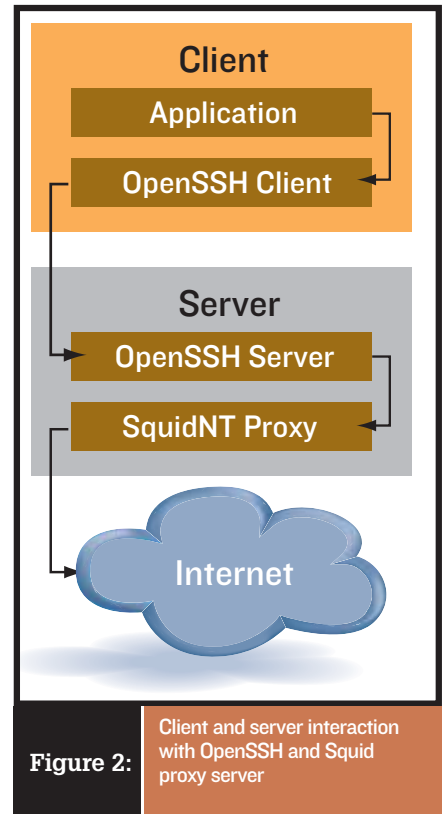
You can use any unused port number in place of 3127 on the client. Remember the port number because you'll need it when configuring client applications in Step 5.

After the ssh client opens the connection between your mobile system and your remote OpenSSH server, you'll be prompted to log on. Be sure to use the same username and password to log on that you defined in Step 1. This is either your local Windows username and password on your OpenSSH server or your domain username and password as derived from your domain controller (DC), if you used that method of creating the group and passwd files.

Step 5: Configure Your Client Applications


With the encrypted connection open and ready to use, you can configure your Web browser (and other necessary applications) to use the Squid proxy server. Be sure to set the proxy server address to the *localhost* address 127.0.0.1 on port 3127 (or the port you used on your local client computer).

When you configure your client applications to use a proxy server (which in this case is actually the SSH client running on your local system), all your network traffic will be tunneled over your secure encrypted VPN connection, which is routed through your OpenSSH server to its destination, as Figure 2 shows. However, if your applications don't support proxy connections, their traffic won't be tunneled over the secure connection and instead will travel directly over your regular network connection.



Cowabunga! Connectivity

That was easy, right? Even though this solution takes only a few minutes to implement, you might consider making a copy of your OpenSSH server and Squid for Windows configurations on portable media such as a flash drive, so that you can rebuild the server side of the solution on another server much faster in the future.

Also, be sure you test this solution before you go on the road, because your client, server, and network border firewalls might need adjustments to port settings or general rules for the OpenSSH and Squid for Windows services to work correctly. And finally, if your network uses Network Address Translation (NAT) and your OpenSSH server has a NAT address, you might need to configure port forwarding on your firewall to ensure that overall routing and connectivity works correctly. 

InstantDoc ID 94902

Mark Joseph Edwards

(mark@ntshop.net) is a senior contributing editor for *Windows IT Pro* and writes the weekly email newsletter *Security UPDATE* (<http://www.windowsitpro.com/email>). He is a network engineer and the author of *Internet Security with Windows NT* (29th Street Press).

Learning Path

WINDOWS IT PRO RESOURCES

To learn more about VPNs:

- "Building a Secure VPN," InstantDoc ID 37447
- "Network Architecture IOI," InstantDoc ID 42929
- "Secure VPN Alternatives," InstantDoc ID 93957
- "SSL VPN Products Buyer's Guide," InstantDoc ID 45612
- "VPN Step-by-Step," InstantDoc ID 41447

To learn more about remote access:

- "Secure Remote Access Solutions," InstantDoc ID 94639



Kick Your MOBILE ADS SOLUTION

Add virtual migration capabilities to your solution in just 5 STEPS by Robert Larson

SOLUTIONS SNAPSHOT

PROBLEM:

You want to perform physical machine to virtual machine migrations without having to deploy ADS to your entire enterprise.

SOLUTION:

Extend the mobile ADS solution so that it has virtual migration capabilities.

WHAT YOU NEED:

The basic mobile ADS solution (see InstantDoc ID 93625), Virtual Server 2005 R2, VSMT 1.1

DIFFICULTY:



In “ADS Unplugged” (November 2006, InstantDoc ID 93625), I showed you how to build a basic mobile Automated Deployment Services (ADS) solution that lets you perform Windows OS migrations with no impact on or reconfiguration of your production network. Now I want to show you how to kick it up a notch so that you can use this mobile solution to perform physical machine to virtual machine migrations. Although I’ll be discussing how to expand a mobile ADS installation, you can use the same concepts to expand an ADS installation on a network.

So far, I showed you how to create the mobile ADS solution by assembling the necessary hardware on a mobile cart and installing the basic software, which consists of Windows Server 2003 Enterprise Edition, DHCP, and Automated Deployment Services (ADS) 1.1. To expand this solution so that you can perform physical machine to virtual machine migrations, you need to perform five steps:

1. Install Microsoft IIS.
2. Install Virtual Server 2005 Release 2 (R2).
3. Install Virtual Server Migration Toolkit (VSMT) 1.1.
4. Create the default virtual network.
5. Load Virtual Machine Additions.

Step 1: Install IIS

Because the mobile ADS solution is a single-server installation, you need to run and manage Virtual Server 2005 R2 on the same platform. To run Virtual Server 2005’s Web-based administrative console—that is, the Virtual Server Administration Website—in this configuration, you must run IIS on the mobile server, which in this case, is the MobileP2V server. (If you’re expanding an ADS installation on a net-

work, it’s possible to have a central installation of the administrative console that manages multiple virtual server hosts. In this situation, IIS isn’t required on each virtual server.)

To install IIS, you can use either the Control Panel Add or Remove Programs applet or the Configure Your Server Wizard. The wizard simplifies the process, so let’s use it. Using local administrative access, log on to the MobileP2V server. You need the Windows 2003 CD-ROM to install IIS, so place it in the machine’s CD-ROM drive. Select Programs on the Start menu, then choose Administrative Tools. On the Administrative Tools menu, select the Configure Your Server Wizard option to launch the wizard.

On the main page of the wizard, click Next. On the Preliminary Steps page, click Next. In some instances, you might be prompted with a Configuration Options page. If this page appears, select Custom Configuration and click Next.

You should now be at the Server Roles page. Select the *Application server (IIS, ASP.NET)* option and click Next. You don’t need FrontPage extensions or ASP.NET for the Virtual Server Administration Website, so click Next again.

On the Summary of Selections page, which lists all the roles that you selected for installation, click Next and the installation of IIS will begin. Click Finish to exit the wizard after the installation completes.

Step 2: Install Virtual Server 2005 R2

It’s now time to install Virtual Server 2005 R2. It’s important that you use Release 2 because it addresses a DCOM permissions issue that its predecessor

Up a Notch

doesn't address. (Windows 2003 Service Pack 1—SP1—increased the security of IIS by changing the default DCOM permissions. As a result, when you open the Virtual Server Administration Website in Virtual Server 2005, you receive an error message.) You can download Virtual Server 2005 R2 for free. For details and a link to the download, go to <http://www.microsoft.com/virtualserver>.

Double-click Setup.exe to start the installation of Virtual Server 2005 R2. In the Microsoft Virtual Server 2005 Setup page, select the Install Microsoft Virtual Server 2005 R2 option to start the installation process. Accept the license agreement and click Next. In the Customer Information page, enter your username, organization, and product key, then click Next. Because you're building a single-server solution and need all the components, select Complete Install and click Next.

The Configure Components page, which Figure 1, page 50 shows, lets you specify a different default port for the Virtual Server Administration Website. However, in this case, you should leave the default, which is port 1024. Also leave the default option of *Configure the Administration Website to always run as the authenticated user* selected. (You'd select the option to run the Administration Website as Local System account if the Administration Website needs to be hosted on a server separate from the Virtual Server service.) Click Next.

Click Install to start the Virtual Server 2005 R2 installation. During the installation, you'll briefly lose network connectivity while the network drivers are being installed. After the installation is complete, you should receive a Web page with installation notes and links to the local installation. Click Finish to close the setup program.

Virtual Server 2005 R2 is now installed, but there is one configuration change that needs to be made because of Microsoft Internet Explorer's (IE's) heightened security configuration. If you're running Windows 2003 SP1 and you attempt to load the Virtual Server Administration Website, you'll be prompted for credentials, even if you're logged on as the local administrator. Although you can still use the

Administration Website, having to enter your credentials every time you connect to it and every time you use the Virtual Machine Remote Control client can quickly get annoying.

To eliminate the prompts for credentials, you need to add the mobile server's URL (in this case, <http://mobilep2v>) to the *Local intranet* security zone in IE. By default, this zone is configured to automatically provide credentials (if requested) when accessing a Web site. Open an IE window, and choose Internet Options on the Tools menu. On the Security tab, click the *Local intranet* icon to modify its settings. You should have the security level set to the default of medium-low. To add the mobile server's URL to the *Local intranet* zone, click the Sites button, then click the Advanced button. As Figure 2, page 50 shows, enter the URL and click Add.

Step 3: Install VSMT 1.1

The next step in expanding the mobile ADS solution is to install VSMT 1.1. VSMT 1.1 is included in ADS 1.1, which you downloaded when you created the basic mobile ADS solution. So, VSMT 1.1 should already be in the C:\temp directory on MobileP2V. If you didn't previously install ADS 1.1, you can download it from <http://www.microsoft.com/windowsserver2003/technologies/management/ads/default.msp>. Extract the contents to the C:\temp directory on MobileP2V. Note that you can't install ADS 1.1 on a 64-bit version of Windows 2003 or on Windows XP.

Follow these steps to install VSMT:

1. Double-click the C:\temp\vsmt\vsmt_setup.msi file to start the installation. On the Welcome page, click Next.
2. Review the EULA. If you accept the terms, select the Accept option and click Next.
3. Select the *Full installation* option and click Next.
4. Click Install. After the installation completes, click Next to close the setup program.

At this point, VSMT is installed. However, I recom-

SOLUTIONS SNAPSHOT

SOLUTION STEPS:

1. Install IIS.
2. Install Virtual Server 2005 R2.
3. Install VSMT 1.1.
4. Create the default virtual network.
5. Load Virtual Machine Additions.

mend that you perform two more tasks: create the default virtual network to make sure that VSMT successfully performs migrations and load Virtual Server Additions to improve image deployment performance.

Step 4: Create the Default Virtual Network

When VSMT performs a physical machine to virtual machine migration, it will, by default, assign the virtual machine to use a virtual network named VM0. However, the VSMT installation program doesn't create this virtual network because it can't assume VSMT will be installed on the same computer as Virtual Server 2005 R2. So, the VSMT installation program leaves it up to you to create the virtual network.

In migration scripts, you can use the /vsHostNet command-line option to specify a different virtual network to use for a migra-

tion. However, if you fail to specify this option and the default VM0 virtual network doesn't exist, the deployment will fail. For this reason, I recommend that you create the default virtual network, even if you don't think you'll use it.

To create the VM0 virtual network, you can use the Virtual Server Administration Website or run the createvirtualnetwork.vbs script that VSMT provides. To run the script, open a command-shell window and type

```
cscript "C:\Program Files\
Microsoft VSMT\Samples\
createvirtualnetwork.vbs"
```

(The column width forces us to wrap this command here, but you'd type it all on one line in the command-shell window.)

Createvirtualnetwork.vbs creates the VM0 virtual network and automatically attaches it to the first host adapter it finds. If you have more than one host adapter in MobileP2V, you need

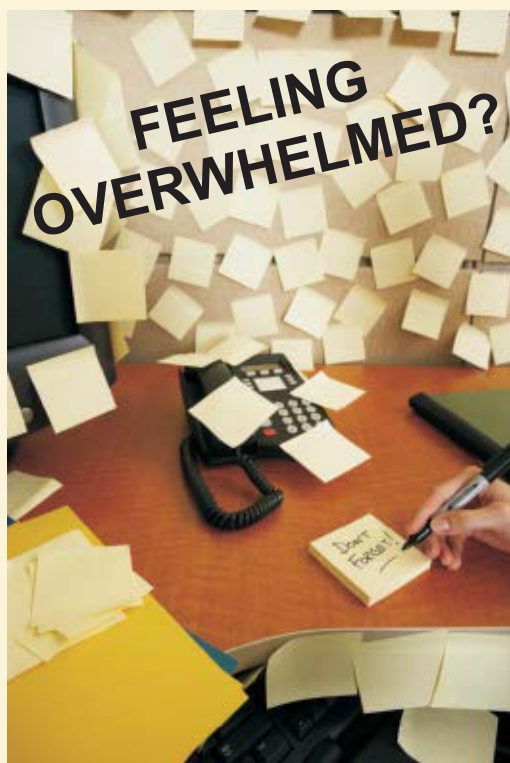
to verify that the VM0 virtual network is bound to the same adapter that's running the Preboot Execution Environment (PXE) service (in this case, 10.10.10.1).

Step 5: Load Virtual Machine Additions

To improve image deployment performance in Virtual Server 2005 R2, I recommend that you load driver files from Virtual Machine Additions (VMAdditions.iso) into the ADS Deployment Agent Builder service repository. If you do so, the ADS Deployment Agent Builder service incorporates the driver files into any source-computer image, which will reduce the amount of time required to deploy the image during migration.

In Virtual Server 2005 R2, Virtual Machine Additions are distributed on an ISO image file and are packaged in an .msi file for ease of installation. Thus, you can use one of

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two methods to obtain the three driver files you need. The first method involves copying Virtual Machine Additions.msi from the ISO file, retrieving the driver files from Virtual Machine Additions.msi with a tool that can extract files from an .msi file, and copying the driver files to the C: driver on MobileP2V. The second method involves copying the three driver files from a virtual machine on which Virtual Machine Additions has already been installed.

I'll assume you already have an existing Windows 2003 virtual machine that has Virtual Machine Additions installed, so let's take a look at the latter method:

1. Copy the three necessary driver files—msvmcs.sys, vmadd_msvmcs.sys.cat, and vmrvc.sys—from the virtual machine to the MobileP2V machine's C:\temp directory. On the virtual machine, you'll find these driver files at
 - C:\Program Files\Virtual Machine Additions\msvmcs.sys

- C:\Program Files\Virtual Machine Additions\vmadd_msvmcs.sys.cat
- C:\Windows\System32\Drivers\vmrvc.sys

2. Copy the three driver files in the Mobile-P2V machine's C:\temp directory to its C:\Program Files\Microsoft ADS\nbs\repository\User\PreSystem directory.

3. To configure the ADS Deployment Agent Builder service, copy four files from the ADS and VSMT install points to the C:\Program Files\Microsoft ADS\nbs\repository\User\PreSystem directory. Those four files are:

- C:\Program Files\Microsoft ADS\nbs\repository\Windows\intelide.sys
- C:\Program Files\Microsoft ADS\nbs\repository\Windows\pcidex.sys
- C:\Program Files\Microsoft VSMT\Samples\vsmt_scsi.inf
- C:\Program Files\Microsoft VSMT\Samples\vsmt_ide.inf

Learning Path

WINDOWS IT PRO RESOURCES

For background information about the advantages of virtualization:

Benefits of Server Virtualization

<http://www.windowstopro.com/podcast>

Beyond the Buzzword - Demystifying Virtualization TCO Improvements

<http://www.windowstopro.com/podcast>

MICROSOFT RESOURCES

For background information about Virtual Server 2005 R2:

Microsoft Virtual Server 2005 home page

<http://www.microsoft.com/virtualserver>

For background information about how to install VSMT:

HOW TO: Guideline for use Virtual Server Migration ToolKit

<http://support.microsoft.com/kb/555306>

For information about how to use VSMT:

Server Consolidation and Migration with VSMT

<http://www.microsoft.com/windowsserversystem/virtualserver/overview/vsmtwhitepaper.mspx>



Figure 1: Configuring the Virtual Server Administration Website

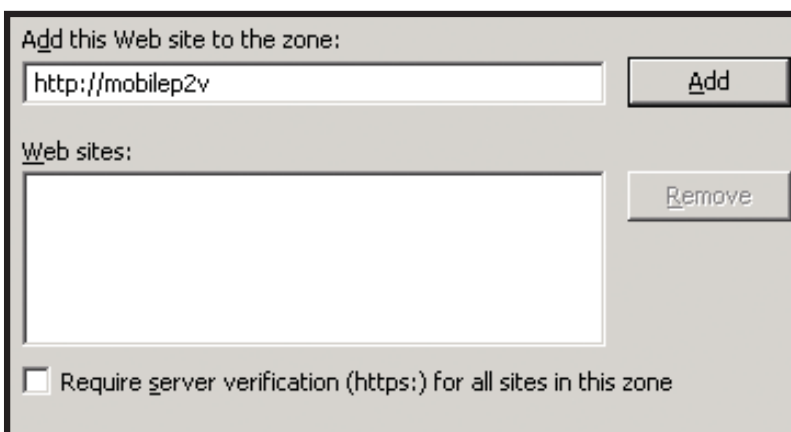


Figure 2: Adding the mobile server's URL to the Local intranet zone

4. Restart the ADS Deployment Agent Builder service using the Microsoft Management Console (MMC) ADS snap-in.

The driver files from Virtual Machine Additions are now preloaded and will be used for any future image deployments. You don't need to perform these tasks again for subsequent migrations.

Ready to Migrate

You successfully installed IIS, Virtual Server 2005 R2, and VSMT 1.1 on your mobile ADS solution. In addition, you made some modifications to eliminate some annoying problems and provide better performance during image deployment. Your extended mobile ADS solution is now ready to be put to use. In case you're unfamiliar with VSMT, I'll explain how it works and demonstrate how to use the extended mobile ADS solution to perform a physical machine to virtual machine migration in a future article.

InstantDoc ID 94982

Robert Larson

(roblarso@microsoft.com) is a Microsoft Services Architect and subject matter expert for virtualization products and a regular speaker at TechEd and ITForum. He has published a white paper on building clusters using Virtual Server 2005 and delivered several TechNet Webcasts on Virtual Server 2005 clustering and COM API.

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Develop a **STORAGE STRATEGY** with **COMPLIANCE** in Mind

How different
regulatory
requirements drive
storage needs

IT professionals deal with dozens of regulatory and business-compliance requirements that affect storage management, yet often their companies choose storage solutions with little or no consideration for how those solutions can help meet compliance requirements. I've chosen three common regulatory-compliance areas—the Health Insurance Portability and Accountability Act (HIPAA), Securities and Exchange Commission (SEC) Rule 17a-4, and the Sarbanes-Oxley (SOX) Act—to illustrate the different compliance needs that can affect storage management. In future articles in this series, we'll delve into specific storage solutions to meet compliance needs.

The Storage Perspective

With all the compliance and regulatory issues that corporate enterprises deal with, the concerns of a storage administrator don't usually get the attention they deserve. This is because senior management considers IT from a vertical perspective. That is, management looks at IT as a discrete set of issues, where each problem and its solutions get stuck in a box, and that collection of boxes is the IT department's responsibility to handle without affecting the business workflow or user experience. This prevalent attitude among senior management has its own pitfalls, especially in the area of network storage.

What corporate management needs to accept and corporate IT needs to learn is that certain technologies such as network security and storage management cut horizontally across the enterprise. No one would argue that network security isn't important to consider across the enterprise, but the reality is that in most cases it's still treated more as a vertical responsibility: One group is responsible for perimeter security, another group is responsible for application security, and yet a third group is responsible for data security. Worse yet, each of those groups might be divided into smaller areas of responsibility, resulting in minimal coordination or cooperation between those responsible for maintaining security at the hands-on level.

This lack of coordination is especially prevalent in storage management. Everyone, from entire departments down to individual users, tends to consider the storage to which they have access as theirs. This attitude simply exacerbates the problems that IT encounters when trying to implement a comprehensive storage management strategy. Yet despite

those problems, you need a strategy to address the regulatory-compliance requirements regarding data storage. You need to analyze your storage requirements in a horizontal fashion, given how storage underlies almost every corporate computing activity. Doing so will help you develop a strong storage model that can help your company meet compliance needs without sacrificing usability and accessibility.

Regulatory Standards and Storage

Consider the variety of commonplace regulatory standards, ranging from the privacy requirements of HIPAA, to the progressive archival requirements of SEC Rule 17a-4, to the compliance requirements of SOX. All impose specific explicit or implied responsibilities on corporate storage. What companies rarely consider is that the business's regulatory environment should determine the selection of storage and a storage management strategy. Rather than trying to make an existing storage solution solve problems for which it wasn't designed, it's far more practical to factor in compliance issues when you're making decisions about new or expanded storage environments.

Using our three regulatory examples (HIPAA, Rule 17a-4, and SOX), let's look at the most common of storage concerns—backup and recovery. In all three compliance areas, it's essential to have reliable backups and the ability to recover accidentally deleted information, but the priorities and specific details of this requirement differ with each set of regulations.

HIPAA and Storage

With the case of HIPAA, it's obviously important not to lose patient information, but the key to the regulatory coverage is protecting the privacy of that information. This means that you need to maintain careful control over who can actually read the data through the backup and restore process, not to mention who can request that IT provide data restoration. Not all data protection schemes will provide for this level of data-access security, yet in a HIPAA-mandated environment, data-access security should be one of the primary considerations in the implementation of any data protection, backup, and recovery solution.

You'll need to translate the various HIPAA requirements for administrative, physical, and technical



David Chernicoff
(david@windowsitpro.com) has been writing computer-related features and product reviews for more than 15 years and is coauthor of *Microsoft Windows XP Power Toolkit* (Microsoft Press).

safeguards to actions related to storage, ranging from what type of written policies and procedures you keep regarding the use of network storage to the possibilities of hardware-based data encryption done at the storage-server level. HIPAA requirements affect storage policies throughout the equipment life-cycle, from the point of introduction to the network to how equipment must be disposed of, with the goal of protecting the privacy of the potential data stored on that hardware.

In regard to storage management, a business's primary concern under HIPAA is protecting stored data from unauthorized access. Everything else is secondary, because if the primary requirement is abrogated, the potential exists for serious legal action against the business. This mandate for protection of stored data places the added burden on administrators of making sure to clean up the tracks a file leaves within the computing environment. Temporary files, copies of files on client computers, retired backup tapes, or any other location where data might once have resided must be sanitized. That is, not only must you delete all files, but information such as all references to files, all random pieces of data on disk, and ACLs. Although data protection from unauthorized access is always on the mind of the storage administrator, HIPAA's regulatory requirements complicate storage practices immensely. Even a file deletion is no longer simple, and storage policies and procedures must reflect this reality.

Simply put, HIPAA requirements change the standard corporate storage management mindset and affect all network-attached computing activities. Given the nature of the modern medical environment, this means that storage management policies and practices apply horizontally across a broad variety of vertical applications.

SEC Rule 17a-4 and Storage

Now let's look at SEC Rule 17a-4. In this case, although data privacy is important, the regulation focuses on data accessibility, specifying what types of data must be kept available and for how long. Therefore, data-storage requirements depend on the type of data and its particular set of requirements.

Time periods for data retention under 17a-4 fall into four categories: two years, three years, six years, and for the life of the business enterprise. It's therefore crucial that you're able

to classify your data and how it will be stored. Additionally, the regulation uses the phrase "easily accessible place" to describe where much of the covered data should be stored.

Given these requirements, it's clear that your backup strategy must be one of the driving factors in the storage implementation plan. And given that the regulation covers communication between broker and client and requires the storage of that communication, integration of the data backup and recovery scheme with a business's email software is required, to meet the regulation's "easily accessible" clause.

To comply with 17a-4, a business will need to implement a multi-tier storage architecture that comprises online, nearline, and offline storage, depending upon the point in the information life cycle where each piece of affected data currently resides. To meet this requirement, then, when you evaluate storage solutions, look for a comprehensive hardware platform that includes a suitable storage management component, which addresses information life-cycle needs while requiring minimal work on IT's part.

Compliance with 17a-4 also requires tight integration of email with backup storage. The ability to reliably and easily recover email

that could be as much as three years old is a requirement that could cause serious problems with email servers for a large business that needed to retain its messages online as part of the active mail store. Maintaining email-server performance at a high level is generally at odds with keeping huge amounts of archival email online, so the ability to migrate email data to an accessible, but not primary, storage location becomes another motivating factor in the data management plan.

In this storage environment, capabilities such as self-recovery and online backup and restore go a long way toward fulfilling regulatory requirements. But you need to maintain complete and thorough data backups, because simply clicking the delete button on an email in a user's inbox can violate the applicable rule. You need to maintain storage on the network, or on any location that's kept backed up and current, to avoid inadvertently violating regulatory requirements. Complying with 17a-4, therefore, will require large amounts of storage, for which you'll need to have practices and processes to keep it backed up and technology and processes to keep that backed-up data easily accessible.

Steps in DESIGNING A STORAGE COMPLIANCE STRATEGY

No matter what your compliance needs, you need to consider certain things when evaluating storage for regulatory-compliance purposes. I've found these steps helpful to follow in designing a storage compliance strategy.

1. Determine what regulations affect corporate storage needs.
2. Assess whether storage needs and compliance requirements affect the entire company or just specific business units.
3. Determine what, if any, data-retention requirements your company must comply with.
4. Verify whether your company must meet specific site-storage requirements. Evaluate what type of storage devices best serve the retention needs.
5. Determine what, if any, requirements exist for data security (above and beyond normal corporate practice).
6. Decide whether you can extend existing storage security to meet the regulatory requirements.
7. Look for a comprehensive solution that meets compliance needs instead of jerry-rigging a piecemeal solution. For example, there are Value Added Resellers (VARs) who specialize in vertical markets and produce solutions that combine backup, storage, and management specifically to meet particular compliance needs.
8. Implement storage policies and procedures that enable your organization to meet regulatory-compliance requirements.

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SOX and Storage

Storage compliance under SOX is both easier and more difficult than the other compliance areas we've examined. It's easier because, at its simplest, SOX requires everything involved in corporate activity to be stored somewhere for possible retrieval. This requirement makes large amounts of physical storage (e.g., NAS, enterprise SAN setups) a practical way to store masses of data in a manageable fashion. Add in the capability to securely back up and restore that data, and you've probably covered all the bases. The difficulty in determining a SOX-compliance strategy lies in determining what to save and what to discard.

Auditors who specialize in SOX compliance can give you the information you need to build the type of storage network that's appropriate for your environment. Without this type of careful analysis, businesses can end up storing everything, which not only can become a network-storage-management nightmare but can have unexpected consequences in the event of regulatory litigation. IT has a responsibility to make sure regulatory requirements are met, but because this is such a specialized area, determining applicable due diligence should be done with the assistance of the appropriate auditors.

Compliance Needs Drive Storage

It should be clear by now that regulatory compliance should be a primary driver when you select storage hardware and storage management software. After you determine what storage environment can appropriately handle the applicable regulatory constraints, you'll find it's a much simpler task to manage that storage so that you minimize any chance of a failure that might expose the company to litigation. Although regulatory requirements are well defined, the solutions for complying with them aren't. Therefore, you need to carefully analyze business needs as well as business workflow to determine how best to use a storage model while maintaining regulatory compliance. (For a checklist to help you evaluate your storage compliance needs, see the sidebar "Steps in Designing a Storage Compliance Strategy," page 56.) Keep in mind that you can meet storage requirements by using a horizontal solution that provides appropriate storage to all parts of the corporate enterprise while solving the regulatory storage problems.



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HOSTED APPLICATIONS

Understand the pros and cons of going with a service provider

The 1990s saw a big investment in application service providers (ASPs)—Internet-based companies that were going to provide businesses with the applications they needed. Although the idea was sound, ASPs didn't take off and many providers bit the dust.

However, the hosted-application market didn't disappear completely, and in the years since there has been a slow but definite trend toward a general acceptance of what is now more commonly known as the remotely hosted-application model. Both client- and server-side applications are available to businesses, and there are strong arguments for implementing some hosted applications in almost every environment.

Hosted applications of all sorts have one big advantage: fixed monthly costs. You can accurately forecast how much you'll spend on hosted applications because you know how much you're paying per user. If you're self-hosting, you always need a cushion to deal with the unexpected problems that crop up even in the best IT organizations. Let's take a look at the different types of remotely hosted applications and the things you need to consider before giving your business to a hosted-application provider.

Web Sites

Web sites are the most commonly hosted applications. Only very large businesses host their own Web sites internally, and there are many good reasons not to do so, especially if the business has high-traffic Web sites. It's very expensive to build and manage the infrastructure necessary for a high-traffic Web site, and the ISPs that offer Web hosting services are equipped to do just that. If your line of business (LOB) requires Web sites to be available to the public at all times, it makes sense to host those sites through a provider that offers the necessary hardware, software, and networking redundancy. I'm not saying you can't grow your business with the intent to bring Web hosting in house, but the investment necessary for the infrastructure can usually be better spent in some other aspect of your business.

If you decide to host your LOB Web sites offsite, you must have a reliable Internet connection so that your users and customers can connect to the hosted applications. If you look at the vast majority of ISPs used by small-to-midsized businesses (SMBs), you won't find many service

level agreements (SLAs). For example, if you read the fine print on business Internet connectivity TV commercials, you'll notice it states that connectivity and performance aren't guaranteed. SLAs are available, but guaranteed connections are costly, and you must factor that expense into the overall price/value matrix that you use to determine whether remotely hosted Web sites make sense for your business.

Email

The office-automation application that's most commonly hosted remotely is email. Hosted email makes a lot of economic sense and ranges from simple SMTP/POP3 email to a full-blown hosted Microsoft Exchange server implementation. Keeping email applications running has always been somewhat complex, especially now that there's a need to scan and filter email to cut down on junk mail, spam, and email-borne malware.

Many SMBs simply use the free email provided by the ISP that hosts their Web sites. Even inexpensive hosting packages let businesses set up hundreds of individual email accounts, usually using SMTP/POP3. However, such packages typically don't include managed email, email backup, or integration of email with other applications. Some basic spam prevention might be included, but it's rarely accurate or reliable and usually filters only inbound traffic. And although many ISPs support standard email clients and provide a Web interface to their free email accounts, the Web interface is typically very basic, lacking filtering and mail management tools.

The next step up from free ISP-provided email accounts is hosted Exchange Server email. In this case, businesses use a remotely hosted and managed Exchange server and have access to all the capabilities of that server. Users have full use of the Microsoft Office Outlook email client (including scheduling, calendaring, and notes) and get mail-specific functionality, such as Outlook Web Access and Outlook Mobile Access. The responsibility for maintaining the Exchange server falls on a service provider that specializes in maintaining the Exchange environment. Hosted-Exchange providers can provide these services at a reasonable price because they spread operational costs across multiple customers. At this level, customers don't get their own dedicated Exchange server, but share the resources of an environment with other customers.



David Chernicoff

(david@windowsitpro.com) has been writing computer-related features and product reviews for more than 15 years and is coauthor of *Microsoft Windows XP Power Toolkit* (Microsoft Press).

Most providers offer a step up from this basic service to what's called a managed server—an Exchange server that's dedicated to a specific customer. Your business gets its own server, which is located in the provider's data center. Many providers offer businesses the opportunity to co-manage the server with the provider, which lets businesses run their own custom applications on Exchange while taking advantage of the security and management services offered by the remote provider.

Outsourcing email can significantly reduce costs for small organizations. Hosted-Exchange providers claim that organizations with fewer

than 100 mailboxes will benefit from their services. These claims are based strictly on the cost of running and maintaining Exchange, which can be determined fairly accurately.

SharePoint

Many hosted-Exchange providers can also host SharePoint for their managed-server and hosted-server customers. The provider can integrate Exchange and SharePoint to give customers the ability to build a hosted collaborative workgroup environment. Most Exchange hosting providers add an incremental charge for SharePoint hosting, based on the number of users and the amount of storage the busi-

ness customer wants to dedicate to users.

Hosted email and SharePoint services make a compelling business case to many businesses. These services let even small businesses fully utilize email and related services without requiring an up-front investment in hardware and software or imposing significant ongoing costs for maintenance and support.

Business Applications

Another level of remotely hosted services consists of complex applications such as Oracle and Microsoft SQL Server and the enterprise-class applications that run on top of them, such as those from PeopleSoft, SAP, and Siebel, and especially customer relationship management (CRM) applications. End-to-end solutions are available that provide the hardware and software to run these applications, as well as the specialized expertise necessary to make them work, which is often the biggest stumbling block to the adoption of such complex technologies. Although the initial purchase price can be significant, the ongoing investment in the skills needed to get the most value from these applications eventually dwarfs the startup cost.

In this environment, the biggest advantage that hosted-application providers can give customers is the expertise necessary for the exceedingly complex applications involved. Businesses that use such services can realize cost reductions of as much as 50 percent compared with the cost of an in-house implementation. It makes far more sense to use a hosted service than it does to make the up-front investment in the infrastructure needed to support a pilot project or even to simply evaluate a technology.

A variety of hosted CRM applications is available for businesses. Major application vendors, such as IBM, offer hosted versions of very high-end database-based CRM products. The biggest impact on CRM has come from hosted providers such as salesforce.com, which offers CRM solutions appropriate for small businesses (fewer than five users) as well as businesses with thousands of users. CRM is an appropriate fit for the hosted-application business because a sales force needs to be able to access its data anywhere. A Web-hosted CRM application lets your sales staff access its information wherever an Internet connection is available. Although the same can be said of almost any hosted application, accessibility is a major business advantage for a CRM solution.

Deciding to use hosted enterprise-class applications requires extensive research.

HOSTED APPLICATIONS CHECKLIST

Are remotely hosted applications right for your business? Answering these questions will help you decide.

STEP 1: Analyze Business Needs to Determine Which Applications Are Suitable for Remote Hosting

- ☐ Is your business an SMB that needs to support a high-traffic, high-availability Web site?
- ☐ Do you need to provide a collaborative workgroup environment for employees?
- ☐ Do you use complex enterprise-class applications such as CRM?
- ☐ Do you want to provide a standard working environment for a group of dispersed users?

STEP 2: Develop a Price/Value Matrix for Suitable Applications

- ☐ How many users will use each application?
- ☐ At what point does the hosted application become cost effective?
- ☐ Does your business's growth path call for additional hosting services or for moving the application in house?

STEP 3: Determine How Hosted Applications Will Impact Workflow

- ☐ Does access from any Internet-enabled location present a problem?
- ☐ What applications must be kept onsite?

STEP 4: Evaluate SLAs

- ☐ What level of service is required for each application?
- ☐ What would application downtime cost your business?
- ☐ What are the available backup and disaster recovery options?

STEP 5: Don't Forget About Your Internet Connection

- ☐ Does your SLA guarantee acceptable connectivity and performance? Hosted applications are useless if your users can't reach them or they don't provide the required throughput. If your application provider is different from your ISP, you'll also need to have an SLA with your ISP.

STEP 6: Document and Diagram Your Business Process and Workflow

- ☐ Do you and your application provider understand and agree on who is responsible for hosted-application support, management, maintenance, and security?


Although the low startup costs and the ongoing savings are significant, there are few, if any, standard decision models you can use to determine whether a hosted CRM or other enterprise-class application is a good choice for your business.

Client Applications

Hosted client applications make standard office automation tools, such as word processing and spreadsheets, available through a Web site. The most commonly hosted client application is Microsoft Office. In hosted client applications, you're effectively running a hosted Citrix or Windows Terminal Services environment. The client uses RDP or ICA to connect to the hosting server from his or her local computer. Because hosted client applications are accessible from any Internet-enabled location, they're useful for businesses that are geographically widespread. Hosted client applications let businesses ensure the same working environment for all users without having to worry about configuration, management, or user support.

However, hosted client applications require an Internet connection. Users who aren't connected can't do any work because they don't have a local application to use when they're offline. You also need to maintain sufficient network bandwidth to assure acceptable user response times in periods of peak use. The metric for determining the value of a remotely hosted client environment isn't as clear as it is for many other hosted applications. Google's free Web-based word processor, spreadsheet, and calendaring software is an example of a fully hosted end-user application environment.

Coming to a Decision

Making the decision to use hosted applications requires you to carefully evaluate the costs involved as well as the advantages and disadvantages for your business. Even the apparently simple choices need to be analyzed based on what your business plans to do with the service. For example, if basic email services are all that your business requires, the choice of hosting providers is broad, whereas the choice of vendor and the services available becomes more critical if you plan to build business-critical collaborative environments. You're likely to find that in most cases a combination of hosted services and internally supported applications is the proper mix for your environment. 

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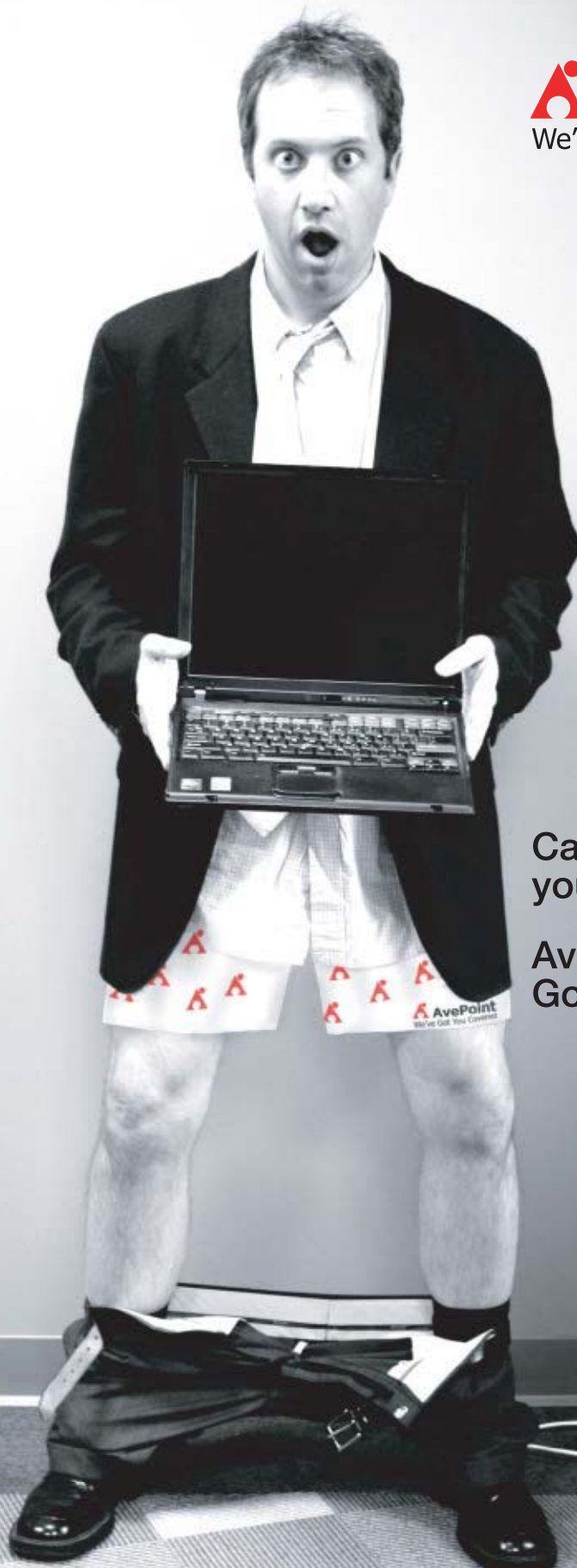
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SHAREPOINT FEATURE

Let's continue our journey into Microsoft Office SharePoint Server 2007 to gain an understanding of its new features and capabilities. In "SharePoint Server 2007 Unleashed," InstantDoc ID 94652, I covered seven "experiences" that I designed to introduce you to SharePoint Server 2007 functionality. Now let's look at eight more experiences (including one that repeats a lesson from last time), which will help you become familiar with SharePoint Server 2007 sites, lists, and libraries, as well as SharePoint workflow, forms, and business intelligence.

Experience 8: Content Management

SharePoint content management lets you control when, by whom, and how content gets published to an intranet or Internet site. We'll use SharePoint's default News site to look at some of the fundamentals of content management in SharePoint. Because this experience is browser based, you don't need any Microsoft Office 2007 applications for it.

Go to the News tab in the top link bar, then click News, Sample News Article. We'll begin by modifying this existing sample article, then we'll create a new article. Click the Site Actions button on the upper right side and choose Edit Page.

You'll see the page change into Edit mode, which Figure 1 shows, which displays the Page Editing toolbar. You can use the toolbar controls to change the content of this article. You'll see labels for content components, such as Page Image, Article Date, Byline, Content, Image Caption, and Rollup Image, which appear as a result of the specific page layout that was chosen. Notice that when you edit a content component, you use a rich, Microsoft Office Word-like WYSIWYG editor that you can configure to include features you want. Besides editing, you can format text, embed pictures, and create tables. You'll learn more about page layouts in a moment, but for now, change the title, date, byline, and content. The layout itself will look much better when the

SharePoint Server 2007 Revealed

Experience the power of workflow, Web parts, BI, and more

by Dan Holme

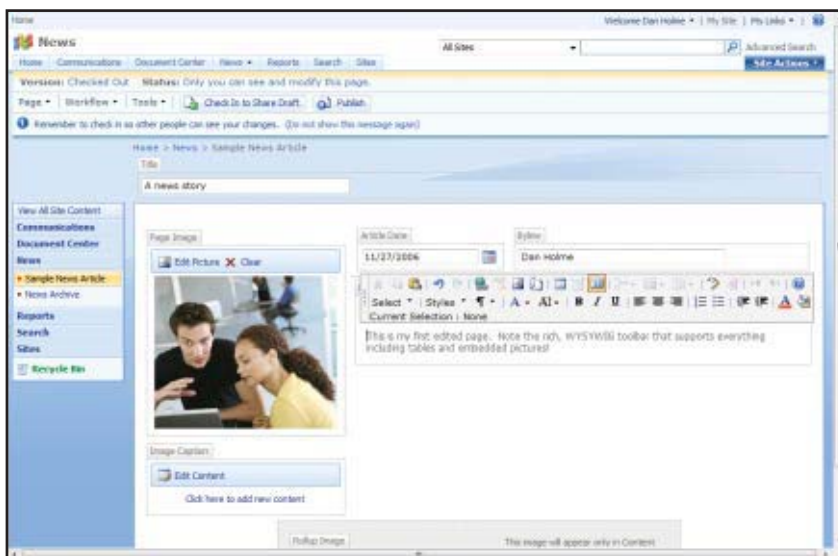


Figure 1: Using the Page Editing toolbar

article is not in Edit mode, and you can choose Preview In New Window from the Tools menu to see that.

When you're finished, click the Publish button to make the edited page visible to users. Pages can be submitted as drafts by clicking Check In To Share Draft, in which case the page becomes a minor, or "dot" version (e.g., version 0.1 or 1.3). Draft versions aren't visible to all site users. When a page is approved and published, it becomes a major version (e.g., 1.0 or 2.0). You can configure who is allowed to view drafts and workflows to determine who can approve a submitted draft. You'll learn more about workflows in a later experience.

Now let's create a new page. Click Site Actions, Create Page. Give the page a title (I chose "More Good News") and a URL (I used *moregoodnews*). Then select a page layout. The page layout you select determines the content components of the page. The page we edited earlier was the *Article page with image on left* layout. Click Create and the page will be created and put immediately into Edit mode. Create some content for your article and click Publish to publish it. Page layouts can be completely customized by using Microsoft Office SharePoint Designer 2007 or Microsoft Visual Studio 2005.

Experience 9:

Content Queries and Roll Ups

SharePoint Server lets you query content from one site or across multiple sites and "roll it up" for display in one place. Go to

the News home page. Click Site Actions and choose Edit Page. You use the same command that we used to modify the article to modify Web part pages such as at each site's home page. In Edit mode, you can see the three Web parts that make up the News site. In Figure 2, the Web parts appear in the main section of the window, each in their own box below an *Add a Web Part* heading.

Click the edit button on the Recent News Web part, and choose Modify Web Part. As Figure 2 shows, a panel will open on the right of the screen to show the Web part's properties. In our example, this Web part is, in fact, a Content Query Tool Part, one of the Web parts installed by SharePoint Server 2007. The Recent News Web part queries all news articles and, importantly, sorts them in descending order of date modified and limits display to only one item. In this way, the "headline" on the page will always show the most recently published News page.

The News Roll Up Web part is also a Content Query Tool Part. You can configure this Web part to sort news articles by such variables as date created or date modified, and to display news articles in ascending or descending order. You can also configure how many articles to display.

Experience 10:

RSS Aggregation

Although you can use an external feed reader to subscribe to a SharePoint library

Learning Path

WINDOWS IT PRO RESOURCES:

"7 Things You Need to Know About SharePoint Services,"
InstantDoc ID 49873

"Windows SharePoint Services 3.0 Out of the Box"
InstantDoc ID 94240

MICROSOFT RESOURCES:

"Microsoft Windows SharePoint Services 3.0"

<http://office.microsoft.com/en-us/sharepointtechnology/FX100503841033.aspx>

"Microsoft SharePoint Products and Technologies Team Blog"

<http://blogs.msdn.com/sharepoint>



or list, Windows SharePoint Services includes an RSS Viewer Web part, which you can insert in any Web part page. On the News home page, click Site Actions, Edit Page. Click the edit button on the RSS Viewer Web part and choose Modify Web Part. In the RSS Viewer Web part properties panel, expand the RSS Properties section and enter an RSS feed URL. I used <http://blogs.msdn.com/sharepoint/rss.xml>, which is the Microsoft SharePoint team's blog. Click OK, then click Publish. You should see an RSS aggregation on your SharePoint page.

Experience 11: Déjà Vu: Creating a Departmental Subsite

I covered this experience in my previous article, but before we continue, let's create a site for the people who will write the check for your SharePoint Server license: your Finance department.

Go to SharePoint Server's Home tab; choose Site Actions, Create Site; and configure the site with *Finance* as the title, *finance* as the URL, a Team Site template, and unique permissions. Either add a real user account or create one for testing. I use Penny Xavier, budget manager, as an example.

Experience 12:

Report Libraries: Excel Services and Dashboards

Use Microsoft Office Excel 2007 to create a simple worksheet that contains some numbers. We'll use this to create a performance indicator that will appear on our SharePoint page, so make sure that one cell has a value that you can compare

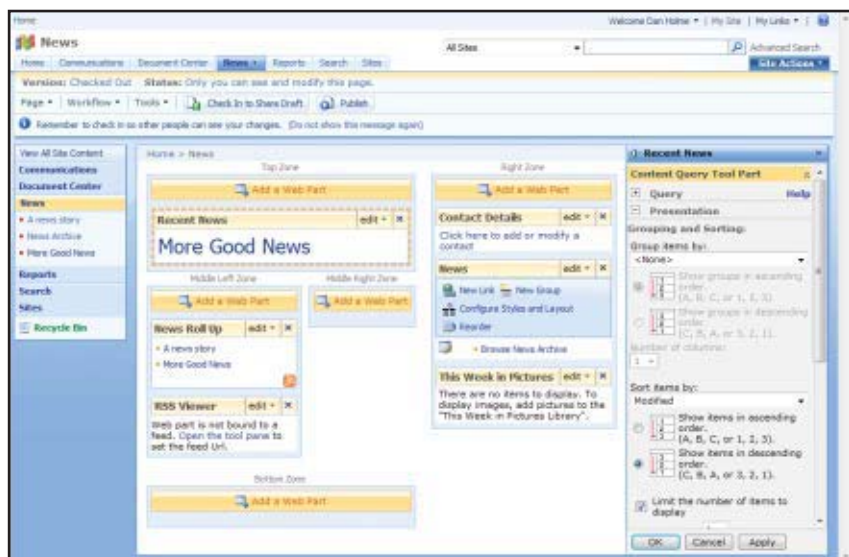


Figure 2: Editing the Recent News Web part

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against another cell's "goal" value. For example, create a spreadsheet with a grand total value in cell C7 and a goal value in cell C8.

At the Finance site that you created in Experience 11, click View All Site Content, Create. Select a Report Library and call it Reports. Click the Upload button and upload the spreadsheet you created. You'll be prompted to fill in document properties such as a filename,

friendly title, description, and whether you wish to maintain version history for the report.

Like other SharePoint Server features we've looked at, SharePoint Server's Excel Services packs power. Calculations are actually performed on the server and heavy-duty crunching can even be offloaded to Windows compute clusters. However, for this experience, our budget manager, Penny, just needs to see the

data to know whether the business is on track.

In the Reports library, click New and choose Dashboard Page. Enter a file-name (I used *finance.aspx*), title (I used *Finance Dashboard*) and a two-column vertical layout, and select *Create a KPI list for me automatically*. The Finance Dashboard will be created.

In the Excel Web Access [1] Web part, select *Click here to open the tool pane*. The page will enter Edit mode. When the Web part's properties panel appears on the right, find the text box labeled Workbook and click the browse button. Locate the Excel worksheet you just uploaded, then click OK on the Web part's properties panel. Because we have only one worksheet to upload, click the close button on the Excel Web Access [2] Web part. Click Exit Edit Mode under Site Actions, and SharePoint will refresh the page, showing your Excel worksheet embedded in the page, rendered by the Excel Web Access Web part and Excel Services. This view is available even to users who don't have Excel installed.

Experience 13: Key Performance Indicators


Although Budget Manager Penny might like seeing numbers, decision-makers often want a quick visual cue as to what is, and is not, on target. Key Performance Indicators (KPIs) can help. In the Finance Dashboard, click the New button under Key Performance Indicators and choose *Indicator from data in Excel workbook*. On the Finance KPI Definitions: New Item page, enter a friendly name for the indicator (e.g., Business Performance). Click the Excel-like icon next to the Workbook URL field and browse for your report. After you've selected it, you'll be able to select the cell containing the indicator value (the "actual" value) and the cells containing the goal value ("desired" value) and the value at which a warning should be triggered. Click OK to create the indicator, and the KPI you just configured will appear on the Finance Dashboard.

Experience 14: Create an Expense Report and Workflow

SharePoint Server facilitates moving your business processes and forms online. Let's set up an online expense report submission and approval application, using

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InfoPath 2007, another application in the Office System.

On the Finance home page, click Site Actions, Create. Select a Form Library and name it Expense Reports—all other defaults are fine. Now we need to open InfoPath 2007. In the Getting Started dialog box, select *Customize a Sample* and choose Sample – Expense Report. Change the header to match your company name, then click File, Publish. The Publish command lets you save the form to SharePoint, but first prompts you to save a copy locally.

The Publishing Wizard then appears. Choose the option to publish the form to a SharePoint Server and click Next.

Enter the URL of the Finance site (e.g., <http://wss01/finance>). You don't have to enter the full URL for the Expense Report library—in fact, it doesn't seem to help to do so, as you'll be prompted for the library soon, anyway.

Click Next and ensure that you select the options to enable the form to be filled out using a browser from a document library. Click Next again. Choose *Update the form template in an existing document library*, and select Expense Reports. Click Next two times, skipping the Column Name page, which we don't need. A summary page appears. Click Publish. After the form is published, click Close on the final page of the Publishing Wizard.

Now we'll create a workflow. Workflows are ways to support business processes using SharePoint. We'll specify that after an expense report has been submitted, Penny or your user must approve it before a check is cut. Back in your browser, in the Expense Reports library, click the Settings button and choose Form Library Settings, Workflow Settings.

On the Add a Workflow: Expense Reports page, give the workflow a name (e.g., Expense Report Approval) and select the *Start this workflow when a new item is created* option and the *Start this workflow when an item is changed* option. All other defaults are fine. Click Next.

On the Customize Workflow: Expense Report Approval page, enter Penny or your user's name as an approver. Click Check Names to confirm that you entered a recognized name—the name will become underlined. Alternatively, you can click Approvers to find your approvers. Approvers can be individual users and/or groups. At the bottom of this page, select *Update approval status when the workflow is complete*.

Now comes the moment of truth. Test it! In the Expense Report library, click New. On a computer with InfoPath installed, the form will open in InfoPath, ready for the user to complete with the full functionality provided by the stand-alone InfoPath client. On a computer without InfoPath, the form will open in the browser.

Fill in the form and click Submit at the top or bottom of the form. If you have any trouble with that in your test environment (which I did), just click the Close button at the top of the form and then save the report when prompted.

Now, let's see if the workflow triggered correctly. Click the Tasks link in the Quick Launch navigation. You should see the task for your user to approve the just-submitted expense report.

Experience 15: My Site

We don't want our users to have to look for their tasks. Although users could subscribe to Alerts or RSS feeds from a task list, or integrate a SharePoint task list directly into Microsoft Office Outlook 2007, a better solution is to use My Site. My Site, which Figure 3 shows, is a user's personal portal. You can customize, and

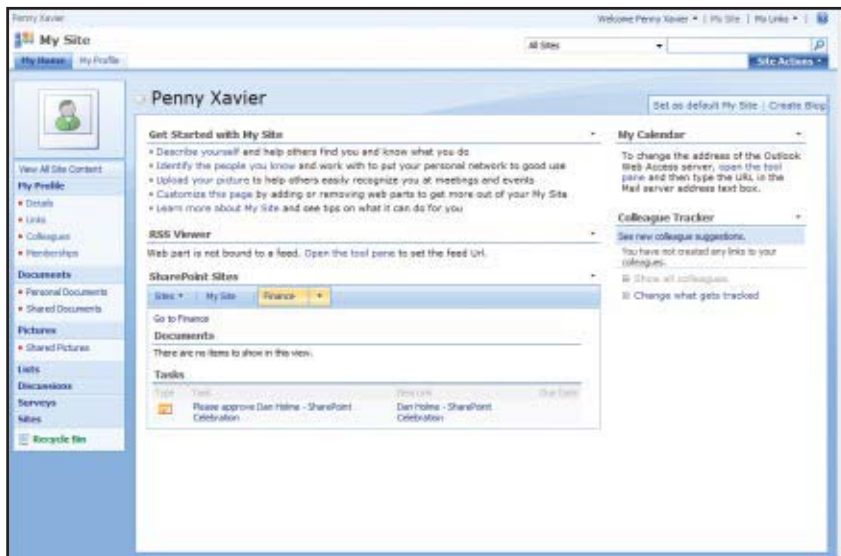


Figure 3: My Site page showing Tasks list

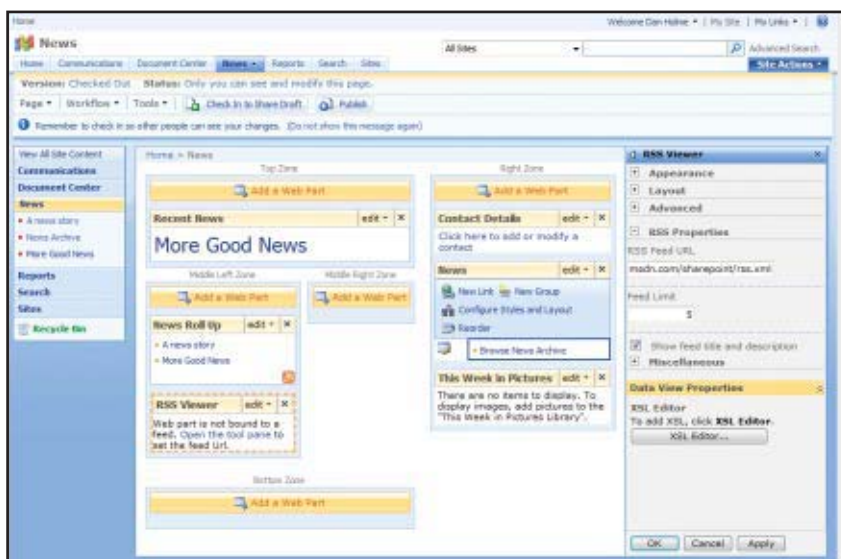


Figure 4: Creating the Finance Dashboard page

manage it, and push content to it.

Open a separate instance of Microsoft Internet Explorer (IE) and browse to the Finance site. You'll likely be authenticated as yourself. Click the Welcome link with your name at the top of the page and you'll see a dropdown menu that lets you sign on as a different user. Log on as your test finance user (e.g., Penny Xavier). You'll see the Welcome link change to indicate your new credentials.

Click the My Site link next to the Welcome link at the top right of the window. The first time a user clicks My Site, SharePoint generates a personal site for the user. The personal site has many capabilities, and the one we'll look at right now is task roll up. After the user's My

Site has been created, you should see Finance listed in the SharePoint Sites section. This list of sites is dependent on the user belonging to the site, so if you don't see the Finance site on the list, perhaps you forgot to give the user permission to it. You can also click the Sites dropdown menu and add the site manually.

When you click the Finance button, you'll see the titles of tasks, as Figure 4 shows. Users can browse tasks by department, team, or project, depending on how you've configured the site structure.

The Journey Continues

After your users experience SharePoint, they might realize its potential for sig-

nificant ROI. In the future, I'll provide guidance about how to plan for, deploy, administer, optimize, secure, and troubleshoot what is arguably the most important new product from Microsoft in six years. Join me at the Windows IT Pro SharePoint Web site, <http://www.MySharePointPro.com>, to discuss SharePoint and to share in the collective knowledge of a great SharePoint community.

InstantDoc ID 94914

Dan Holme

(danh@intelliem.com) is director of consulting at Intelliem, which delivers solutions-focused training and consulting services supporting enterprise SharePoint, Office, Windows, and Active Directory implementations.

Getting to Know Office 2007

Answers to your questions about the new Microsoft Office 2007 system

by Dan Holme

Q: Why does my Pivot Table have an expander (a "+" icon) preceding a row of data?

A: Pivot Tables can now support hierarchical data by displaying a row in the table with a preceding expander, which, when clicked, shows subsequent rows relating to the original row. These subsequent rows can also be hierarchical. Other changes to Pivot Tables include the ability to sort and filter data independently within a Pivot Table and apply conditional formatting within a Pivot Table.

Q: When I perform a search in Microsoft Office OneNote 2007, I'm seeing some of my pictures (screen shots) come up in results. What's going on?

A: It's pretty cool, actually. OneNote 2007 now performs optical character recognition (OCR) on all the graphics in your notebooks, and any text that it recognizes comes up in your search results. If you start storing audio notes (I do that) or storing video files (I'm still thinking of a cool

reason to do that!), OneNote will analyze the audio (or audio portion) of the file for words it recognizes, then index those. I haven't tested OneNote 2007's audio and video search functionality much, so I can't comment yet on how well it works, but the audio/video indexing will change your search results as well. If you want to turn off the audio/video indexing, click Tools, Options, Audio and Video; scroll down to Audio Search; then enable or disable by selecting or clearing the check box.

Q: Can I blog a Word document?

A: Yes, you can. Now, before you smack me and take away my HTML license, the HTML output to the blog is not as bad as you might suppose based on your prior HTML experience with Word.

True, in previous versions of Word if you copied and pasted a document's HTML code into a Web page for public display, your HTML friends would take you out back and persuade you never to do it again.

In Word 2007's blogging features, Microsoft seems to be trying to leave out extraneous code and just provide useful

HTML. The code exported to a Weblog is fairly tidy, and the extra code you were accustomed to seeing in previous HTML output from Word is no longer there. Depending on your blog provider, you'll learn what tags and styles work well and which ones don't. Translation is very basic: "Heading 1" in Word becomes <h1>, bold text becomes , and so on. The first time you post to a blog from within Word 2007, you'll be prompted to enter your credentials and the URL to your blog. Different blog providers have slightly different API and endpoint usage, so check with them for details about endpoint addresses and custom API calls that are available.

InstantDoc ID 95004

Got questions about Microsoft Office?

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Q: I've started to deploy Windows Vista machines but can't find the Administrative (ADM) template files to manage the new Vista Group Policy options. Where are they?

A: With Vista and Longhorn Server, Microsoft has added many new categories of functionality to Group Policy, including Power Management, which, in earlier Windows versions, wasn't configurable via Group Policy without third-party add-ons; drive-blocking capabilities, which let administrators restrict the USB-type devices that can be used on computers; better Microsoft Internet Explorer (IE) settings management; and improved printer support, including the ability to delegate users the capability to install their own printer drivers, removing the need for users to be local administrators of their machines. To facilitate management of these new categories of functionality and improved manageability in general, Microsoft created a new administrative template format, ADMX, which is a standards-based, XML file format. Instead of the standard seven ADM files available with Windows XP, Vista has 132 ADMX files, which provide an XML-based structure for defining the display of the Administrative Template policy settings in the Group Policy tools. You'll find them by default in the C:\Windows\PolicyDefinitions folder.


Windows Server 2003, Windows 2000, and XP Group Policy management tools, including Group Policy Management Console (GPMC) and Group Policy Editor (GPE), understand only ADM files, so it's logical to search for the updated ADM files for the new Vista Group Policy settings, but you won't find them. For Vista, Microsoft has taken the approach of managing Vista from Vista, which means you need to edit Group Policy Objects (GPOs) that apply to Vista machines from a Vista machine (or Longhorn when it's released).

Vista includes GPMC as part of the core product. Simply start the

Microsoft Management Console (MMC), and add the Group Policy Management snap-in. GPMC shows the machine's local forest Group Policy information and lists all GPOs, which you can then edit.

You can manage Group Policy for pre-Vista machines from a Vista machine because the ADMX files that ship with Vista are a superset of the ADM files in pre-Vista versions. Any settings available in the legacy ADM files are available in the new ADMX templates. If you attempt to view a

GPO that has Vista settings from a pre-Vista GPMC session, the Vista-specific configurations will show in the Extra Registry Settings section under Administrative Templates.

Therefore, the way forward is to upgrade all Group Policy administrators' workstations to Vista before upgrading any other machines. That way, administrators can start configuring the necessary Group Policy settings prior to a large-scale rollout. 

—John Savill

InstantDoc ID 94926

John Savill
(jsavill@windowsitpro.com)

Mark Russinovich
(mark.russinovich@microsoft.com)

The Case of the Delayed Windows Vista File Open Dialogs

This is a summary of a popular posting to Mark Russinovich's technical blog (<https://blogs.technet.com/markussinovich/about.aspx>), which covers topics such as Windows troubleshooting, technologies, and security. You can read the entire post at <https://blogs.technet.com/markussinovich/archive/2006/11.aspx>




Last fall, I spoke at the Microsoft Tech Ed: IT Forum conference in Barcelona, Spain. The conference was a huge success, and Windows Vista, which I had taken on the road for the first time, performed great. However, as I was running through some demos, I noticed that the File Open dialog box, which is common to all Windows applications, would often take as long as 15 seconds to appear. The behavior seemed similar to the behavior I wrote about in "The Case of the Process Startup Delays" (<http://blogs.technet.com/markussinovich/archive/2006/08/31/453100.aspx>). In that case, Windows Defender's remote procedure call (RPC) communications tried to contact a domain controller (DC), which resulted in hangs when the system was disconnected from its domain.

To investigate the problem, I launched Notepad from within Windbg (part of the free Debugging Tools for Windows available at <http://www.microsoft.com/whdc/devtools/debugging/default.msp>), typed Ctrl+O to open the File Open dialog, and when I got the hang, broke in and looked at the stack of Notepad's main thread.

A look at the function names on the stack immediately told me what was happening: When you access the File Open dialog box the first time within an application, it navigates to your Documents folder. On Vista, my folder is C:\Users\Markruss\Documents, but the shell wants to make the path in the dialog box's new bread crumb bar (which shows the trail of accessed folders—i.e., breadcrumbs) pretty by displaying it as "Mark Russinovich\Documents." So it calls GetUserNameEx to look up my account's display name as it's stored in my User object in Active Directory (AD).

I set a breakpoint on the call's return and hit it after the delay completed. GetUserNameEx returned the ERROR_NO_SUCH_DOMAIN error code, and stepping through SHGetUserDisplayName revealed that it falls back to calling GetUserName. Instead of looking up the user's display name, that function just obtains the Security Identifier (SID) of the user from the process token (the kernel data structure that defines the owner of a process) and calls LookupAccountName to translate the SID to its account name, which in my case is simply "markruss." Thus, the Open File dialog box's breadcrumb bar referenced "markruss." However, when I reconnected to the corporate network, the breadcrumb bar referenced "Mark Russinovich."

You can read the detailed description of the steps I took to solve the Open File dialog box hangs at <https://blogs.technet.com/markussinovich/archive/2006/11.aspx>, but to summarize, I discovered that Vista's File Open dialog box tries to look up a user's display name for the breadcrumb bar when showing the Documents folder, and in the process, tries to locate a DC by sending a LAN Manager datagram via the Bowser.sys device driver. There's no workaround and anyone that has a domain-joined system that's not connected to the domain for more than 30 minutes will experience the same delays—at least until Vista Service Pack 1 (SP1). 

—Mark Russinovich

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Today, Dan configured a switch in London, rebooted servers in Sydney, and watched his team score the winning goal in St. Louis.

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Create an MMC Snap-In for Searching PDF Files

I recently called Microsoft Customer Service and Support (CSS) to help resolve what I thought was an undocumented error. As it turns out, the error was documented—I just couldn't find a reference to it in the 80 PDF manuals that came with this particular Microsoft product. Luckily, the support engineer I talked with was familiar with the error and knew the exact manual that I had to reference.

After that support incident, I recalled that I had used the Adobe PDF IFilter plug-in for the Microsoft Indexing Service several years ago to search through PDF files. Back then, I had only a dozen Adobe PDF files in a directory of hundreds of .doc, .txt, .html and .mht files. However, I had to search every file for specific text strings, and IFilter served this purpose well.

With the propeller hat spinning full tilt, I decided to again use IFilter with the Indexing Service for the purpose of searching Adobe PDF files. But this time, I created a customized Microsoft Management Console (MMC) snap-in for the UI. Although you can use Adobe Acrobat Reader to search through PDF files in a specified directory, it takes an extremely long time if that directory is large (e.g., 65MB). With the MMC snap-in, the search is almost instantaneous. Here's how you can create this snap-in on your local computer:

1. Go to <http://www.adobe.com/support/downloads/detail.jsp?ftpID=2611> and download IFilter 6.0. This version supports most 32-bit Windows desktop and server versions from Windows Server 2003 through Windows 2000. (See the IFilter 6.0 download page for details.) If you already have the IFilter 5.0 installed, uninstall it first. I found that version 6.0 automatically corrects a registry entry and a DLL registration that had to be manually corrected in version 5.0.

2. Following the instructions provided on the Adobe Web site, install IFilter 6.0. I chose to install it to C:\Program Files\Adobe\PDF IFilter. After you install IFilter, restart your machine.

3. Select Run under the Start menu. Type *mmc* and click OK.

4. From the File menu, select Add/Remove Snap-in and click Add.

5. In the Add Standalone Snap-in dialog box, highlight the Indexing Service snap-in and click Add.

6. In the Connect to Computer dialog box, select *Local computer* and click Finish.

7. Click Close in the Add Standalone Snap-in dialog box, then click OK in the Add/Remove Snap-in dialog box.

8. In the Console Root window, right-click Indexing Service on Local Machine, select the New option, and click Catalog. In the Add Catalog dialog box, provide a name and location for the catalog you're creating. If you want to put the catalog in a new directory, be sure to create this directory beforehand in Windows Explorer. For this example, let's create the My Documents\Index Catalog Files\My PDFs directory for the catalog, which we'll name My PDFs. Click OK in the Add Catalog dialog box. When the message *Catalog will remain off-line until Indexing Service is restarted* appears, click OK again to create the catalog. In this case, the Indexing Service creates the My Documents\Index Catalog Files\My PDFs\catalog.wci directory.

9. You need to stop the Indexing Service before you can restart it, so in the Console Root window, right-click Indexing Service on Local Machine and select Stop. Then, right-click Indexing Service on Local Machine and select Start. The unpopulated statistics for your new catalog will appear in the right pane. Don't worry if only zeros appear. This step simply builds the indexing framework for the catalog. In step 11, you'll provide a path to the directory containing the PDF files that will populate the catalog.

10. When you use IFilter with the Indexing Service, the Indexing Service indexes not only PDF files but also all the files it natively supports, such as .doc, .txt, and .html files. Thus, I recommend that you use Windows Explorer to remove any nonessential subdirectories and files from the directory that contains the PDF files you want to be able to search. In my first test of the catalog, the directory of PDF files I wanted to search had a subdirectory that contained 50MB of streaming video files. Those streaming video files were indexed, which added an unnecessary 65MB to the index catalog.

11. In the Console Root window, expand the directory that contains the My PDFs catalog. Right-click Directories, select New, then choose Directory. To fill in the Path field, browse to the directory that contains the PDF files you want to be able to search. For this example, let's say these files are in a directory named PDF Manuals. You can also enter the directory's Universal Naming Convention (UNC) name in the *Alias (UNC)* field if you want. Click OK. You can add as many directories as you want in the catalog by simply repeating this step.

12. Right-click the path under the Directory header, then select All Tasks followed by Rescan (Full). At this point, if you click Indexing Service on Local Machine, you'll see the My PDFs entry starting to populate. This task will take about five minutes. Note that the more you move your mouse around, the longer it'll take to populate the catalog. Mouse movement causes the Indexing Service to pause because it perceives that movement as user activity on the PC.

13. If you want to add a desktop icon for your new catalog, go to the Console Root window and expand the My PDFs catalog. Right-click Query the Catalog, then select the New Window option. The Query the Catalog dialog box should appear. Close the Console Root window behind the Query the Catalog dialog box because you don't need that

EDITOR'S NOTE

Share your Windows discoveries, comments, solutions to problems, and experiences with products and reach out to other *Windows IT Pro* readers (including Microsoft). Email your contributions to r2r@windowsitpro.com. Please include your phone number. We edit submissions for style, grammar, and length. If we print your submission, you'll get \$100. Submissions and listings are available online at <http://www.windowsitpro.com>. Enter the InstantDoc ID number in the InstantDoc ID text box.

Did You Know?

If you want to know about the security features in Windows Vista, check out the On-Demand TechNet Webcast "Windows Vista Security Explained" at <http://www.windowsitpro.com/events>

window in your finished product. On the toolbar, click the *Show/Hide console tree* button so that all you see is the Indexing Service Query Form. Maximize the Query the Catalog dialog box. On the File menu, select Save As. Name the file My PDFs.msc and save it in the folder that contains the index framework directory (My Documents\Index Catalog Files). I don't recommend that you save it directly in the index framework directory (My Documents\Index Catalog Files\My PDFs) because if you perform an Empty Catalog operation, that operation deletes everything in that directory, including the Management Saved Console (.msc) file you just created. Close all the MMC dialog boxes. When you're asked whether you want to save the console settings, click No. You just saved the .msc file, and you don't want to overwrite that file.

14. Use Windows Explorer to create a shortcut to the My PDFs.msc file.

15. Test your new MMC by clicking the shortcut. A window that's titled "My PDFs - Query the Catalog" should appear that contains the Indexing Service Query Form.

The custom MMC works well and performs searches in seconds. However, I've come across two quirks you need to be aware of:

- When you're searching for a specific term such as Root Kit Virus, be sure to enclose the term in quotes and select the Advanced Query option. If you don't select the Advanced Query option, the Indexing Service will return every document that has any of those words within its contents. Although there's a *Tips for searching* link that has a Query Syntax button to help with search syntax, I've found that the button doesn't

work on my machine. The workaround is to use the Help Topics option on the Help menu.

- If you right-click a drive in Windows Explorer and select Properties, you'll see the *Allow Indexing Service to index this disk for fast file searching* check box. Do yourself a big favor and leave this check box selected, which is the default. I disabled this one time for a test, thinking I could just re-enable it, but doing so broke the Indexing Service's ability to index Microsoft Internet Explorer's (IE's) .mht file type.

If Microsoft's Indexing Service is of interest to you, you can find more information about it in "How to create and configure a catalog for indexing" (<http://support.microsoft.com/?kbid=308202>).

—Bret Bennett
InstantDoc ID 94950

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The Lowdown on Takeown

Check out this quick, simple-syntax tool for taking ownership of files

Ever since Windows Vista appeared, readers have repeatedly sent me the same question: “Why can’t I modify the HOSTS file?” Many people modify the HOSTS file—located in `\windows\system32\drivers\etc`—to protect the system from sites that promote the spread of malware. However, Vista blocks this kind of modification. By default, Vista administrators don’t have permission to delete most files in the `\windows` directory—nor do they own those files. Therefore, to modify HOSTS, you first need to take ownership of the file. You’ve been able to take ownership of a file from the GUI ever since Windows NT 3.1, but that built-in capability isn’t terribly useful for remote administration. Fortunately, Vista and Windows Server 2003 include a new command-line tool called Takeown that lets you take ownership of files or folders.

How It Works

Takeown’s basic syntax looks like

```
takeown /f <file or folder name>
```

You’ll probably need to run Takeown with your full administrative powers, and Vista’s User Account Control might get in the way of that. Therefore, before you try to run Takeown, go to Start, All Programs, Accessories, Command Prompt—as you’ve probably done many times. But this time, in Vista, right-click the Command Prompt icon and choose *Run as administrator*. After you verify the action by clicking Confirm, you’ll have what Vista refers to as an *elevated command prompt*.

You can now take ownership of your system’s HOSTS file:

```
takeown /f C:\windows\system32\drivers\etc\hosts
```

(This command assumes that you have Vista on the C drive, of course. If Vista actually resides somewhere else, just change the drive letter.) Vista will respond with something like

```
SUCCESS: The file (or folder): "C:\windows\
system32\drivers\etc\hosts" now owned by user
<youraccountname>.
```

At this point, you can assign yourself write permissions to the HOSTS file and make changes.

Takeown has more options than just `/f`, of course. To take ownership of an entire tree of folders and files, you can add the `/r` option. Thus, if you wanted to take ownership of a

folder named `C:\documents`, as well as any files and folders inside `C:\documents`, you’d type

```
takeown /f C:\documents /r
```

Tackling an Annoyance

If you’ve ever tried to take ownership of a tree of folders, you might have run into something of an annoyance—namely, Windows’ tendency to ask if you *really, truly* want to take ownership. Suppose, for example, that you not only don’t own `C:\documents` but you also don’t have permission to look in `C:\documents`. In that case, taking ownership of `C:\documents` wouldn’t equip you to take control of any subfolders in `C:\documents` for the simple reason that although you would now own `C:\documents`, you would still lack the NTFS permissions necessary to list its subfolders.

Feasibly, you could take ownership of each directory, one at a time, then add a *list folders* permission to that folder, which would let you see the subfolders in that folder, which in turn would let you take ownership of the subfolders. Thankfully, such manual labor isn’t necessary: Whenever you use the `/r` option with Takeown, the command pauses at each folder and asks whether you’d like Takeown to add the *list folders* permission to that folder’s NTFS permissions. That’s a nice touch, but it means that taking control of a folder containing dozens of folders could get a bit tedious.

The good news is that you can configure Takeown so that it doesn’t ask you if you want to add the *list folders* permission and instead just assumes that you’ll answer yes or no. To do that, you use the `/d` option, followed by a `y` or an `n`. So, to take ownership of `C:\documents` and all its subfolders, while granting yourself the *list folders* permission, you’d type

```
takeown /f C:\documents /r /d y
```

Note, however, that in the process of giving you permission to *list folders*, Takeown `/r` first removes any other explicit permissions on that folder! Inherited permissions seem unaffected in my tests, however.

Own It!

To my knowledge, Windows has previously offered only one command-line tool to take ownership: the resource kit’s Subinacl tool. Subinacl is a powerful tool, but its syntax can require some study. Takeown offers a command-line alternative with simple syntax.



Mark Minasi

(<http://www.minasi.com/gethelp>) is a senior contributing editor for *Windows IT Pro*, an MCSE, and the author of 25 books, including *Administering Windows Vista Security: The Big Surprises*. He writes and speaks around the world about Windows networking.

Did You Know?

You can meet Mark Minasi at the upcoming Windows Connections 2007 conference in Orlando, Florida, April 1-4. For more information, visit <http://www.winconnections.com>.

InstantDoc ID 94831

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Most Enticing Vista Features

Check out this countdown of the new OS's greatest tools

Windows Vista was more than 5 years in the making, and it's definitely the most important Microsoft OS release since Windows 2000—maybe even of all time. The Vista editions that will appeal most to businesses are the Vista Business and Vista Enterprise editions. Vista Business includes domain support and other business-oriented features, such as Microsoft IIS and Windows Meeting Space. Vista Enterprise includes everything that Vista Business offers, plus a few additional exciting features, including the new BitLocker Drive Encryption and licenses for as many as four virtual machine (VM) instances. Vista Business will be preloaded on systems and sold in retail outlets; however, Vista Enterprise is available only to volume-licensing customers. Let's take a look at some of my favorite Vista features, with an eye toward business productivity.

10 Aero Glass UI—Every new Windows version has to have a "cool" factor that separates it from the previous editions, and Vista's cool factor is the Aero Glass interface. Aero Glass boasts rounded transparent windows; animations; and scalable icon support. On the downside, however, the interface does require a DirectX 9.0-compatible graphics adapter with a minimum of 128MB of RAM.

9 New Windows Explorer—Many people prefer the Macintosh-like expanding-folder style of the new Windows Explorer to Windows XP's hierarchical style. One nice Windows Explorer feature in Vista is the new breadcrumb navigation link, which enables you to easily jump to specific directories in your navigation path.

8 New Start menu—Vista sports a new Start menu that's shaped like a button and features an integrated search capability. An expanding-folder style replaces XP's cascading menu style, which makes the Start menu easier to use and uses desktop space more efficiently.

7 64-bit support—The primary advantage of 64-bit support lies in its ability to break the 4GB memory limit that was part of the 32-bit x86 architecture. There are few applications that need 64-bit support, but the increased memory capacity benefits multiple 32-bit applications running in Vista's Windows on Windows 64 layer.

6 Sidebar and gadgets—One of Vista's productivity enhancements is the Windows Sidebar and its associated gadgets. The gadgets are specialized lightweight applications, such as a clock, a calendar, and RSS readers. You can download additional gadgets from the Windows Live Gallery.

5 Sync Center—The new Sync Center lets you easily synchronize data and files between your Vista desktop and your Vista laptop systems. Sync Center isn't limited to laptops; it also supports file synchronization to multiple systems and network servers. Sync Center compares files between two locations and copies the newer version of the file to the target location.

4 Windows Backup—Windows' backup and restore capabilities have been in a deep freeze since the release of Win2K. But Vista's new Windows Backup feature has a vastly improved UI, takes advantage of Volume Shadow Copy Service (VSS), and lets you back up data to optical media such as CD-ROMs and DVDs.

3 Windows Meeting Space—Windows Meeting Space is a new Vista productivity tool that lets you share your system with as many as 10 users. Windows Meeting Space can display your desktop or an application on other Vista systems and enables file sharing and multiple-user editing.

2 Internet Explorer 7.0—Microsoft Internet Explorer (IE) 7.0 is vastly improved over IE 6.0. Like Mozilla Firefox, IE 7.0 provides a tabbed interface, letting you easily open multiple Web sites in one browser window and jump between them. IE 7.0 also features a new search capability and shrink-to-fit printing capability.

1 Security—The most important new features in Vista are all about security. User Account Control prevents applications from running with unnecessary administrative privileges and prompts users when administrative rights are necessary. Vista also includes Windows Defender to protect your machine from spyware, and Vista Enterprise provides BitLocker Drive Encryption, which protects data on laptops.

InstantDoc ID 94798



Michael Otey
(mikeo@windowsitpro.com) is technical director for *Windows IT Pro* and *SQL Server Magazine* and president of TECA, a software-development and consulting company in Portland, Oregon. He is the author of *SQL Server 2005 New Features* (Osborne/McGraw-Hill).

Did You Know?

You can speed a Vista PC's performance without adding RAM? Windows ReadyBoost lets you use a USB flash drive to extend system memory. For details, go to <http://www.microsoft.com/windows/products/windowsvista/features/details/readyboost.mspx>.

Blake Eno (beno@windowsitpro.com)
is product editor for *Windows IT Pro* and *SQL Server Magazine*.

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Readers Review HOT PRODUCTS

"Extracting keys from dozens of computers is no longer a burden."



—Alexis Laliberte, senior technical consultant

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Simplify Product Key Extraction NirSoft's ProduKey

I won't go on and on about how scripting can save you a lot of time. It has been said thoroughly, and all serious IT integrators know that scripting is one of the keys to a successful implementation. So, when trying to extract Windows and Microsoft Office product keys, I was especially happy to find Nirsoft's ProduKey. Although there are plenty of freeware utilities that will extract product keys, ProduKey is among the only ones to support command line parameters. It lets systems administrators and network consultants script and automate Windows and Microsoft Office key recovery. The tool also offers great flexibility with its parameters, from providing methods to extract the keys to methods of generating the output to HTML files or plain text, and so on.

Before ProduKey, I used other freeware programs or expensive asset inventory and audit management software. The problem with some other freeware solutions is that you can use only a GUI to extract product keys. Although this can be good for a small company or department, it becomes really tedious whenever you need to extract keys from dozens or hundreds of computers. As for asset inventory and audit management software, this is just overkill when you simply want to recover a Windows product key. With ProduKey, extracting keys from dozens of computers is no longer a burden and can be fully automated by putting a few lines of code inside an existing logon script.

What's Hot continues on page 80

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Hardcopy

My company's support staff needed an easier way to let our end users print screen shots for the programs they use. We use the screen shots mainly to troubleshoot errors in programs or explain clerical errors that need to be fixed. We are currently using **Hardcopy**, and the results have been good so far. Hardcopy places a printer icon in whichever object a user has open, and all the user needs to do is click and it's done.

The software supports direct emailing after creating the screen shot or hard copies for print. Our heaviest use so far has been for documenting intermittent error messages. This visual aspect of Hardcopy is easier to explain to users than "copying" and "pasting." From our central office, we handle 25 remote locations, so we save a lot of time because we

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Gerald Adams, IT network/systems supervisor

don't have to retrain users each time we need them to send us screen-shots. We highly recommend the product.

Editor's note: Hardcopy offers a number of print screen options. By utilizing keyboard shortcuts or by clicking on the printer icon in your objects, you can print the current screen, current window, or a partial window. Hardcopy works with all versions of Windows, including Windows Vista, and is available as a free download on Hardcopy's Web site.

What's Hot continues on page 84

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Migrate to a Virtual Infrastructure

VMware Converter 3 Beta

Starting a new datacenter in the virtual machine (VM) world would be a snap, but what if you already have physical servers running and configured? Most infrastructure departments simply don't have the time to manually move each server to a VM. Fortunately, **VMware** has a product called P2V Assistant to automate the process. The next-generation P2V (Physical to Virtual) and V2V (Virtual to Virtual) conversion tool is called VMware Converter 3, which is currently in beta testing. Converter can migrate physical, virtual, and even disk images like Norton Ghost. Once a machine has been converted to a VM, it can be used on VMware ESX Server 2.5 and higher, VMware Workstation 4 and higher, VMware GSX Server 3.x, VMware Server 1.0, and even VMware Player.

Reader:
Eric Rux
Systems administrator
Product:
VMware Converter 3 Beta
Company:
VMware
Contact:
www.vmware.com

"Converter is simply amazing."

—Eric Rux, systems administrator

Converter comes in two editions: Starter and Enterprise. The Starter Edition is a free download from VMware's Web site and can migrate only one server at a time. Enterprise is a licensed product (licensing costs have yet to be determined) that can perform multiple migrations all at once. Converter supports cold as well as hot migrations. Cold migrations require you to completely shut down the physical server and restart it using a special boot CD, while a hot migration lets you keep the source server running during the migration. Strangely, cold migrations are only available in the licensed version of Converter.

P2V was good, but Converter is simply amazing. Hot migrations greatly reduce the amount of downtime for a conversion. Converter also deals with the "utility partitions" that are found on HP, Compaq, and Dell servers much better than earlier versions of P2V. What makes this version really worth looking at is that the Starter Edition is free, and what's better than free?



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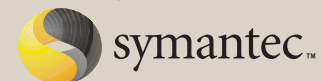
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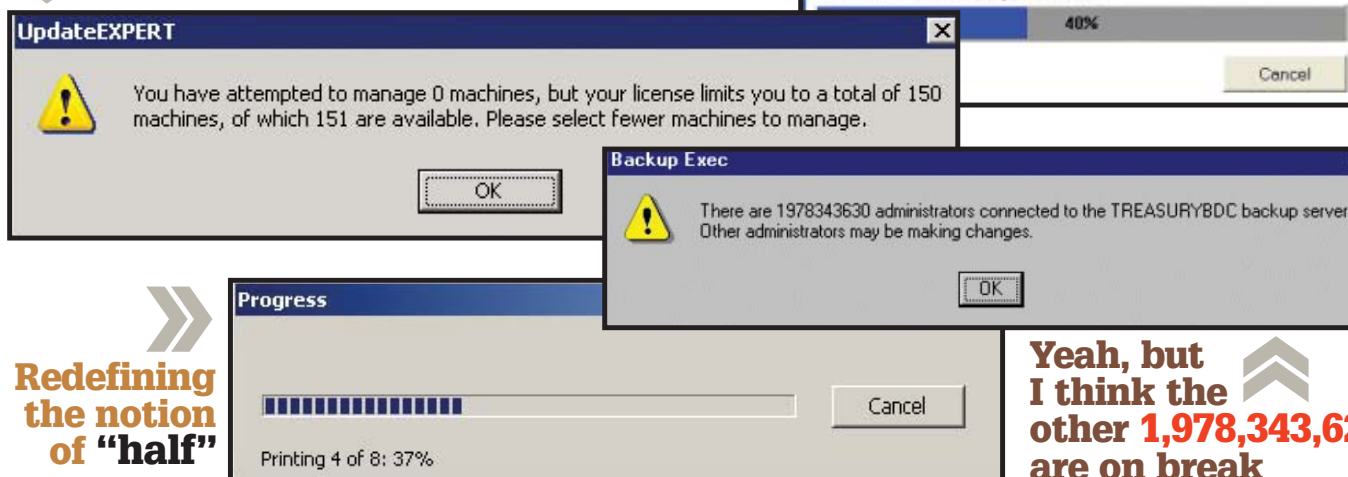
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